HP Blade Server BH Series
Operating System Guide

July 2002

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Audience Assumptions

This guide is for the person who prepares the site for HP servers. Hewlett-Packard assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

<u>Preface</u>

Overview

Blade servers are comprehensive computing systems that include processor, memory, network connections, and associated electronics, all on a single motherboard called a blade. This high-density technology addresses the current trend among large computing centers to reduce space requirement while lowering their total cost of ownership and getting a higher return on their IT investments.

The server blade, along with storage, networking and other blades, are typically installed in a rack-mountable enclosure that houses multiple blades that share common resources such as cabling, power supplies, and cooling fans. With its modular, hot-pluggable architecture, the easily accessible blade server offers increased computing density while ensuring both maximum scalability and ease of management.

HP Blade Servers offer a wide variety of unique features and functionality that will help you to align your IT infrastructure with your business needs. HP's blade server architecture is particularly well suited for Internet access layer computing, including applications such as streaming video, security and web hosting and caching.

Blade Server Models Covered in this Guide

- Specific BH series models covered in this guide are:

    o bh7800
    o bh3710
    o bh3700

Reader Expectations

This OS guide is not intended to be a comprehensive system administrators guide for any one particular operating system. Please consult additional documentation addressing ongoing system administration for your operating system choice. This guide is not designed to cover the BL series blade servers. Please see the appropriate BL documentation for the server you have.

This guide is intended to provide you with the necessary information needed to boot a server blade and configure that blade when received initially and installed in the computer server room. Based on the OS you have selected to use, separate chapters are provided for each operating system and cover Linux, Microsoft Windows 2000 and HP-UX 11i.

1 <u>Using Linux-Based Server Blades</u>

Overview

The information in this chapter was previously contained in the *HP Blade Server bh7800 Installation Guide* and comes from chapter two of the guide. Please see the *HP Blade Server bh7800 Installation Guide* for detailed information as to what has happened prior to this point.

The quick overview up to this point is that server power source has been determined to be within specifications as determined in chapter one of the *HP Blade Server bh7800 Site Preparation Guide.* The power source has been plugged into both the power supplies for the blade server as outlined in the *HP Blade Server bh7800 Installation Guide* and the system has been powered up to a state that requires OS intervention. This OS intervention is described below for blades running the Linux OS.

> NOTE: Information in this chapter applies exclusively to the bh7800 series blade servers. Linux will be introduced on the bh37xx series blade server in the future.

Procedure

1. The server blades power on and begin their initialization process. Let the initialization proceed, without responding to any prompts until the Linux "login:" prompt appears on your display.   During initialization, you see the following:

a.   The amber and red LEDs on the server blades go ON. These LEDs are visible through the two USB ports. They indicate that power to the server blade is ON.

b.   After a few seconds, the amber LED on your monitor power switch should turn green.

c.   Soon, your monitor should display BIOS messages.   Power-on selftests are performed. When the blade successfully completes selfest, the monitor displays the BIOS version number and a prompt such as "Press F2 for SETUP…". Do not respond to the prompt for now.

d.   After the BIOS boot-up screen, you see messages about PXE if PXE boot is turned on in BIOS. If both PXE boots are turned on (on Ethernet 0 and 1), you see two sets of these messages.

e.   Under the PXE messages, the screen displays messages about the Remote Management Card (RMC), including a prompt to enter RMC setup. Do not respond to

the prompt for now.

f.   You see a blinking underscore for less than a minute, as the blade tries unsuccessfully to boot from a "Removable Device" (this is the factory default setting).

g.   The server blade now boots from hard disk. The pre-loaded Debian distribution of Linux is booted and eventually the "login:" prompt appears.

2. At the login prompt, log in as root, using the factory default password, which is password. For example:

Login: **root**
Password: **password**

CAUTION	For security reasons, HP suggests that you change the root password to a more secure password.

3. You can change the password using the passwd command:
   # **passwd**

4. The next steps configure the LAN on each server blade to bring them up on the customer payload network. For each blade do the following:

NOTE	Configure the LAN on the server blade in front slot 1 last (the blade you are plugged into), otherwise you will lose the internal LAN connectivity and be required to plug the VGA and keyboard into each server blade.

a.   Telnet to each server blade using the IP addresses in the following table. For example:

   # **telnet 192.168.1.2**   (for the server blade located in rear slot 2)

Table 1-1: Pre-configured Server Blade IP Addresses

Blade location in bh7800 chassis	IP Address
Rear slot 2	192.168.1.2
Front slot 3	192.168.1.3
Rear slot 4	192.168.1.4
Front slot 5	192.168.1.5
Rear slot 6	192.168.1.6
Front slot 7	192.168.1.7
Rear slot 8	192.168.1.8
Front slot 10	192.168.1.10
Rear slot 11	192.168.1.11
Front slot 14	192.168.1.14
Rear slot 15	192.168.1.15
Front slot 16	192.168.1.16
Rear slot 17	192.168.1.17
Front slot 18	192.168.1.18
Rear slot 19	192.168.1.19
Front slot 1 (Reconfigured last)	192.168.1.1

b.   At the login prompt, log in as root, using the factory default password, which is password   For example:

   Login: **root**
   Password: **password**

CAUTION	For security reasons, HP suggests that you change the root password to a more secure password.

c.   You can change the password using the passwd command:

   # **passwd**

d.   Configure the server blade for the payload network with the command:

   # **/usr/sbin/dpkg-reconfigure etherconf**

   This command prompts you for network information.

e.   Reboot by entering the following command:

   # **reboot**

   You lose your Telnet connection from server blade in slot 1, but now have access via the configured LAN address.

f.   You return to the Linux prompt for the server blade located in front slot 1.

g.   Repeat steps 4a. through step 4f. for the remaining server blades, except the blade in front slot 1.

h.   After you have re-configured all blades except the blade in front slot 1, you re-configure it without using Telnet – you are already logged on to the blade in front slot 1.

CAUTION	Root access to Telnet has been enabled to make it easy to configure the server blades. Because Telnet has security problems surrounding password encryption, HP advises the local customer IT engineers to turn off root access to Telnet after the server blades have been configured for the site network and the customer has customized the Debian Linux OS for their particular needs including the creation of user accounts.

i   To turn root Telnet off, edit the /etc/pam.d/login file as follows:

        # vi /etc/pam.d/login

        Un-comment the following line, so it appears as:

        auth requisite pam_securetty.so

Next, refer back to chapter two in the *HP Blade Server bh7800 Installation Guide.* Begin with step three, entitled, "LAN connectivity to the bh7800" in chapter two to continue with the installation.

Additional Linux Resources

See http://www.software.hp.com/blade-servers/ for the following contents.

Documentation available at this Web site includes the following.

- o   Different Ways to Install Linux
- o   Downloading and Copying Linux OS Images (deploying an HP-provided image based on Red Hat)
- o   Creating Your Own Linux OS Image (installing Red Hat or SuSE distributions of Linux from scratch)
- o   bh7800 Terms

Manuals for the bh7800 are available online at http://docs.hp.com/hpux/hw/

For information on the Toptools agents for bh7800, see the Web site at
http://docs.hp.com/hpux/onlinedocs/diag/st/st_pbar.htm

For general information on Toptools, see the Toptools CD-ROM that accompanies
the bh7800. Also see the Web site at http://www.hp.com/toptools/

Linux source code is available at:

RedHat: ftp://ftp.redhat.com/

SuSE: ftp://ftp.suse.com/ (Also at various mirror sites).

Debian: http://http.us.debian.org/

Download software and firmware for the HP Blade Server bh7800 including the
following off the Web site at http://www.software.hp.com/blade-servers/ for

- Debian
- Red Hat
- SuSE
- Troubleshooting Tools
- Firmware
    - Upgrading the BIOS for the bc1100 Server Blade
    - Upgrading Firmware on the Remote Management Card (RMC)
    - Upgrading Firmware for the Management Blade
    - Upgrading Firmware for the Network Blade (Procurve)

Linux Installation and Recovery CD for HP Blade Servers

The "Linux for HP Blade Servers Installation and Recovery CD (1.0 release)" and
Linux for HP Blade Servers Installation and Recovery CD (1.1 release)
documentation is provided by HP. See http://www.docs.hp.com/linux/index.html
for these documentation manuals.

2 <u>Using Windows-Based Server Blades</u>

Before You Begin

Make sure you have the following items before you begin the installation process:

- Microsoft Windows 2000 Advanced Server CD-ROM

- Microsoft Windows 2000 Advanced Server Service Pack (latest edition)

- Computer with network access

- Driver diskettes

- Microsoft Windows 2000 product license number

Overview

Microsoft Windows 2000 will be loaded on a server blade using a Remote Install Server (RIS). Below, is a graphical overview of what will be accomplished during this procedure.

NOTE:	Information in this chapter currently applies exclusively to the bh7800 series blade servers. Microsoft Windows will be introduced on the bh37xx series blade servers in the future.
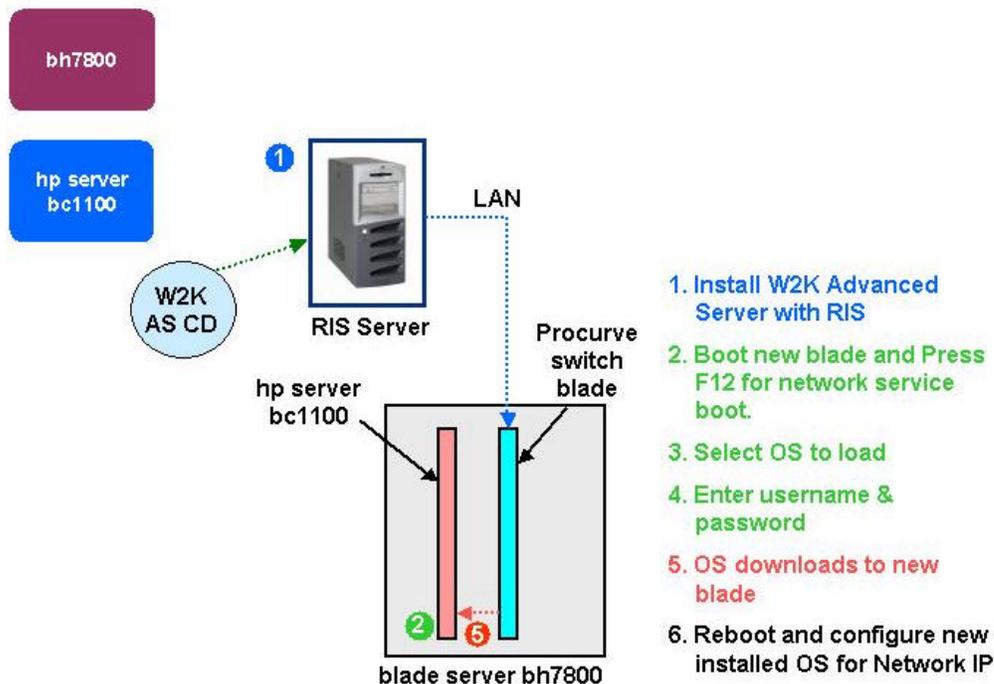
Procedure

Create a Stand-alone Microsoft Windows 2000 Remote Install Server

Requirements

- A stand-alone server connected to the blade LAN. The selected system must have two (2) unallocated physical drives. One drive will be used for the operating system and the second drive will be used for the RIS.
- Microsoft Windows 2000 Advanced Server CD
- Latest Service Pack for Advanced Server
- 10/100 Mbps NIC card

A. Install the Microsoft Windows 2000 Advanced Server to Create a RIS and DHCP Server

Booting the System

Boot the system using the Microsoft Windows 2000 Advanced Server CD. You will see a message that reads, "Setup is inspecting your hardware configuration." Then the setup screen will be displayed.

Installing Drivers

1. If you do not have additional drivers to add, skip to Continue the Installation below. Otherwise: press **F6** to add OEM SCSI, DAC when the message appears at the bottom of the screen.

2. Press **S** to select additional hardware.

3. Select **Other** and press **Enter**.

4. If you have no other drivers that you need to install, press **Enter** to continue with the installation.

Continue the Installation

1. Press **Enter** to continue at the "Windows 2000 Server Setup. Setup Notification…" screen.

2. Press **Enter** to continue at the "Windows 2000 Server Setup. Welcome to Setup…" screen.

3. Press **C** to continue setup at the "Setup has determined that your computer's startup hard disk is new…" prompt.

4. Press **F8** to accept the licensing agreement.

Create a Partition

1. At the drives partitioning screen, select the target drive and create a 4GB partition. Press **C** to create a drive and a partition. Type *4096* and press **Enter** at the Create partition size prompt.

2. Select the target drive to be used to install Microsoft Windows 2000. Press **Enter**.

3. Select Format the partition using the NTFS file system and press **Enter**.

4. The installer will format and copy files to the hard drive. The system will then reboot.

Personalize Your Software

1. Click **Next** to continue at the Setup Wizard first dialog box.

2. The Installing Devices screen will be shown with a progress bar on the display. This may take 10 to 15 minutes.

Note:	If you see a dialog box titled "Digital Signature Not Found," disregard and click "Yes" to continue the installation.

3. Click **Next** at the regional Settings screen.

4. At the Personalize Your Software screen, enter a name and organization. Then click **Next**.

Enter the Product Licensing Key
1. Enter the product license key.

2. At the Licensing modes screen, select the Per Seat radio button and click **Next**.

3. At the Computer Name and Administrator Password type in your computer name, administrator password and password confirmation. Click **Next**.

4. Click **Next** at the Microsoft Windows 2000 Component screen to accept default values.

5. Enter the proper date and time and click **Next**.

Setup the Network Connections
1. The Networking Setting screen starts with a progress bar chart.

2. Click **Next** to accept the default Typical settings.

3. Click **Next** at the Workgroup or Computer Domain to accept the default:
   "No, This computer is not on a network, or is on a network without a domain…

4. "Workgroup or computer domain: WORKGROUP."The Installing Components screen starts with a progress bar chart. It takes about 20 minutes to complete this section. The wizard will then start the "Performing Final Tasks" section to complete the installation.

5. Click **Finish** to complete the installation. Remove the CD from the drive. The system will then reboot from the hard drive.

NOTE:	There may be a period of time with no apparent activity after it displays a message that reads "OS Loader Version 5.0". Be patient.

6. Follow screen instructions to logon. Enter user-id and password.

Install the Service Pack

7. <u>REQUIRED</u> - Apply Service Pack 2 (or later). Failure to perform this step, may cause RIS to fail later in this procedure.

B. Initialize Storage Drive (This is the drive being used to store the RIS image)
To start the disk administrator use the following procedure.
1. Click **Start** | **Programs** | **Administrative Tools** | **Computer Management**.

2. Expand the Storage folder if necessary.

3. Double click **Disk Management**.

4. The "Write signature and Upgrade" wizard will start if you have new hard drives with no signatures on them. Follow the instructions provided by the wizard to create the new hard drive signature.

5. Perform formatting and partitioning. A suggested name is Storage Drive.

NOTE:	There are two types of hard drive configuration: Dynamic and Basic. Select the appropriate type by right clicking on the drive icon on the screen. Dynamic drives are used to create volumes that can contain more than one physical hard drive. Basic drives are used to create primary or locally partitioned drives. Use basic drives in this procedure.

C. Setup NIC to use a Static IP Address

1. Right-click on **My Network Places** | **Properties**.

2. Right-click on **Local Area Connection** | **Properties**.

3. Select Internet Protocol (TCP/IP) and click **Properties**.
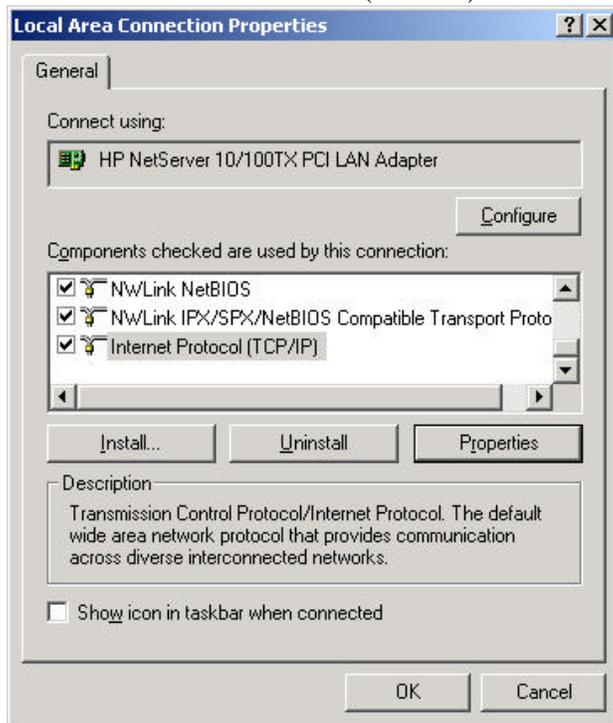
4. Select the "Use the following IP Address" radio button. Enter appropriate IP address and subnet mask (e.g. IP: 100.1.1.l, Subnet: 255.255.255.0)
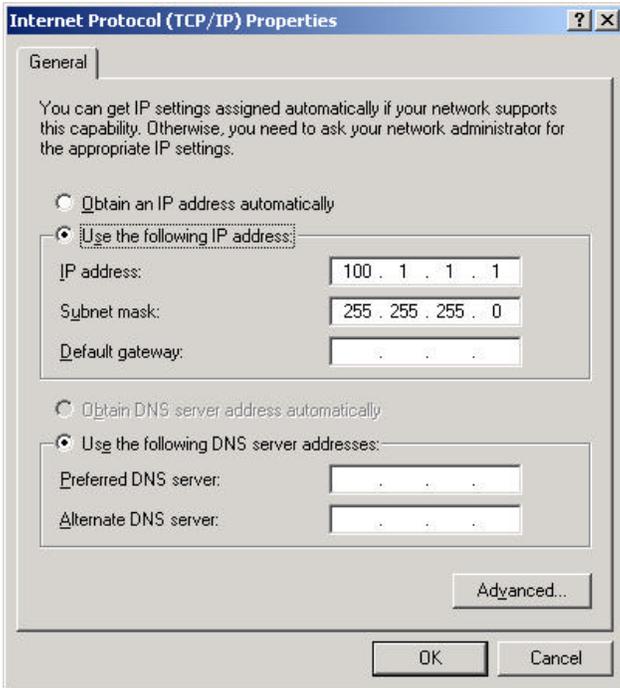
5. Click **OK** to close the Local Area Connection Properties window.

D. Promote System to Domain Controller.

1. Click **Start** | **Run** and enter the command: dcpromo.

2. Click **Next** at the "Active Directory Installation Wizard". (default)

3. Domain Controller Type: accept default "Domain Controller for a new Domain".
Next. (default)
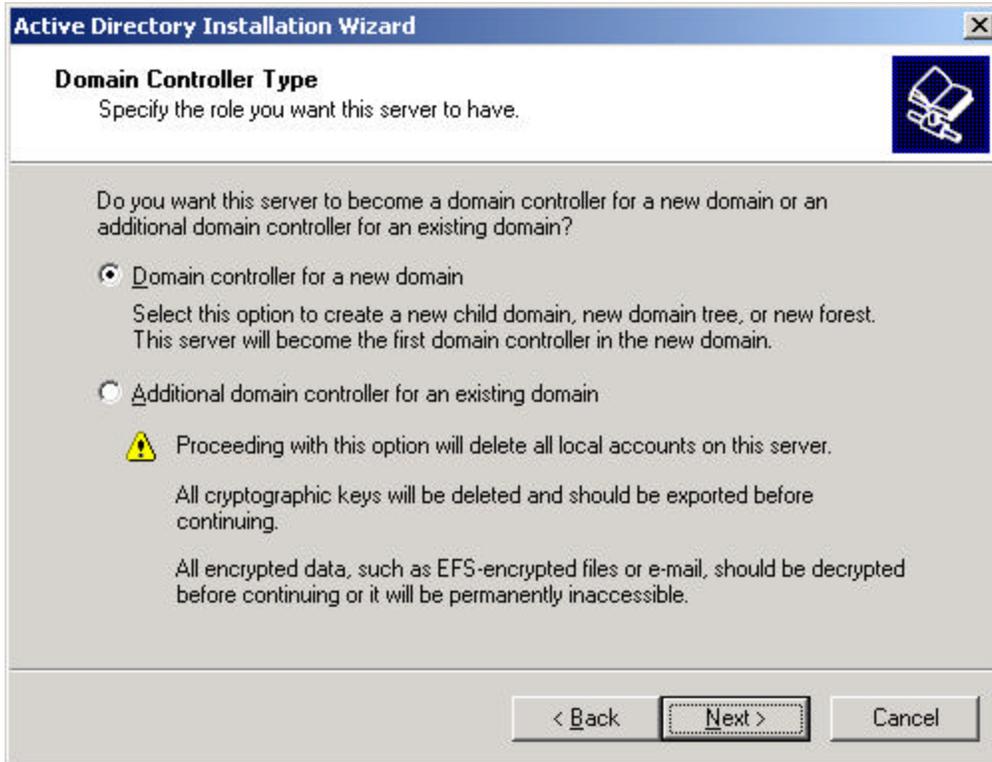
4. Create Tree or Child Domain: accept default "Create a new domain tree. Select **Next**. (default)
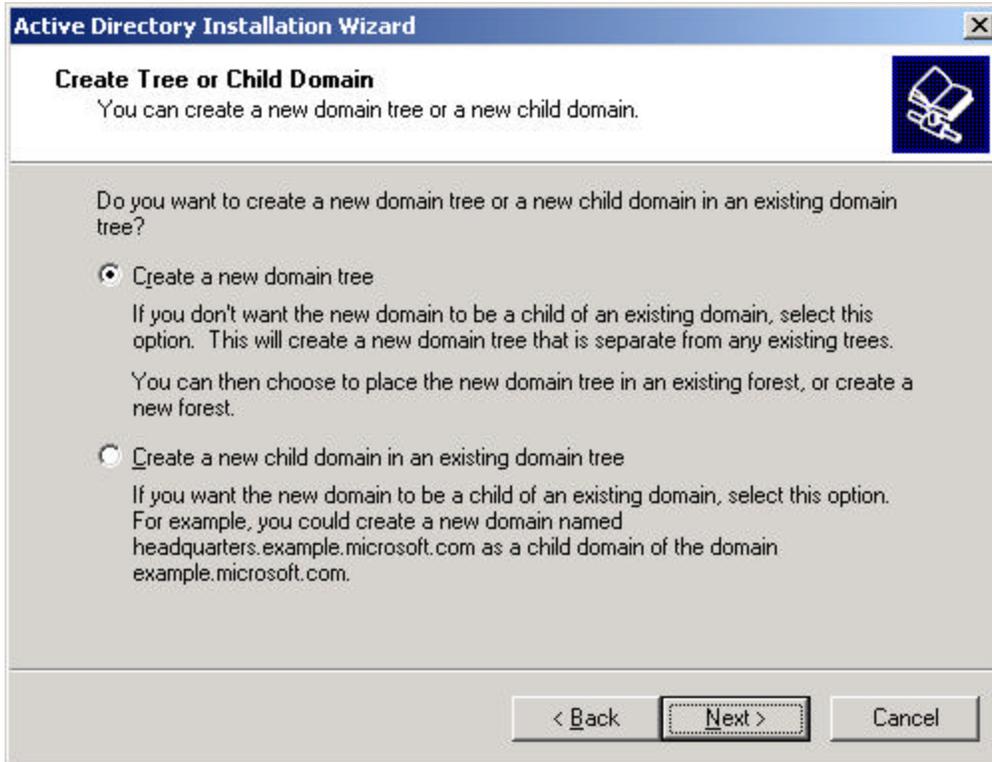
5. Create or Join Forest: accept default "Create a new forest of domain trees" and click **Next**. (default)
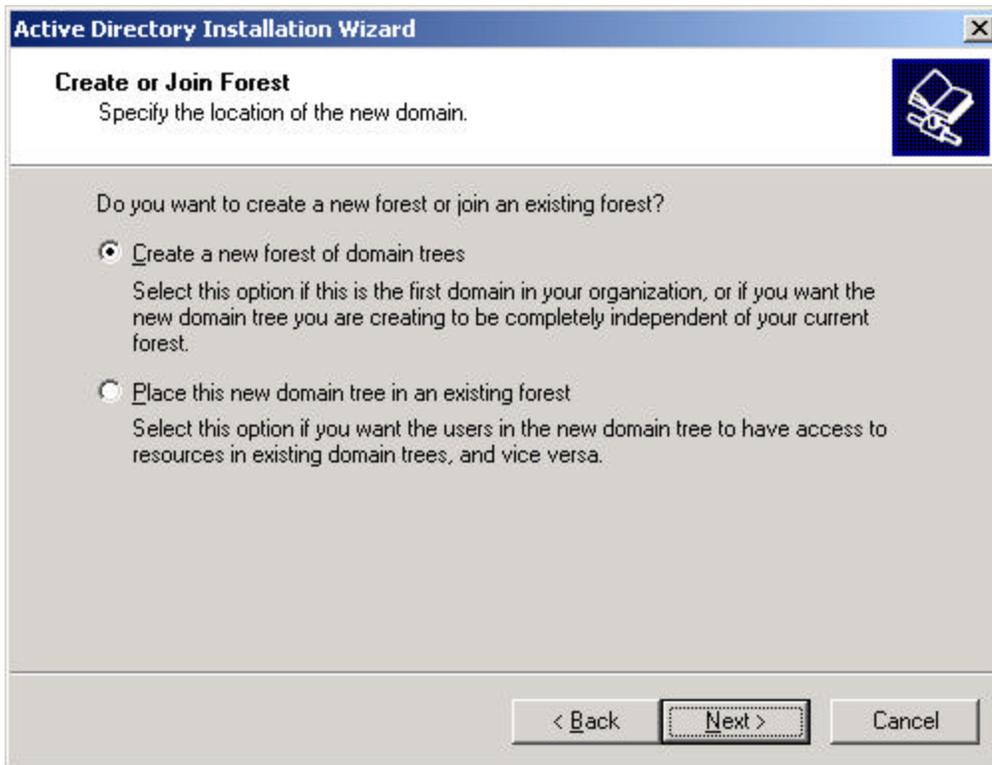
6. New Domain Name: "Full DNS name for new domain:" type in the assigned DNS name for your server (For example, win2kris.com).

7. Click **Next**. (default)
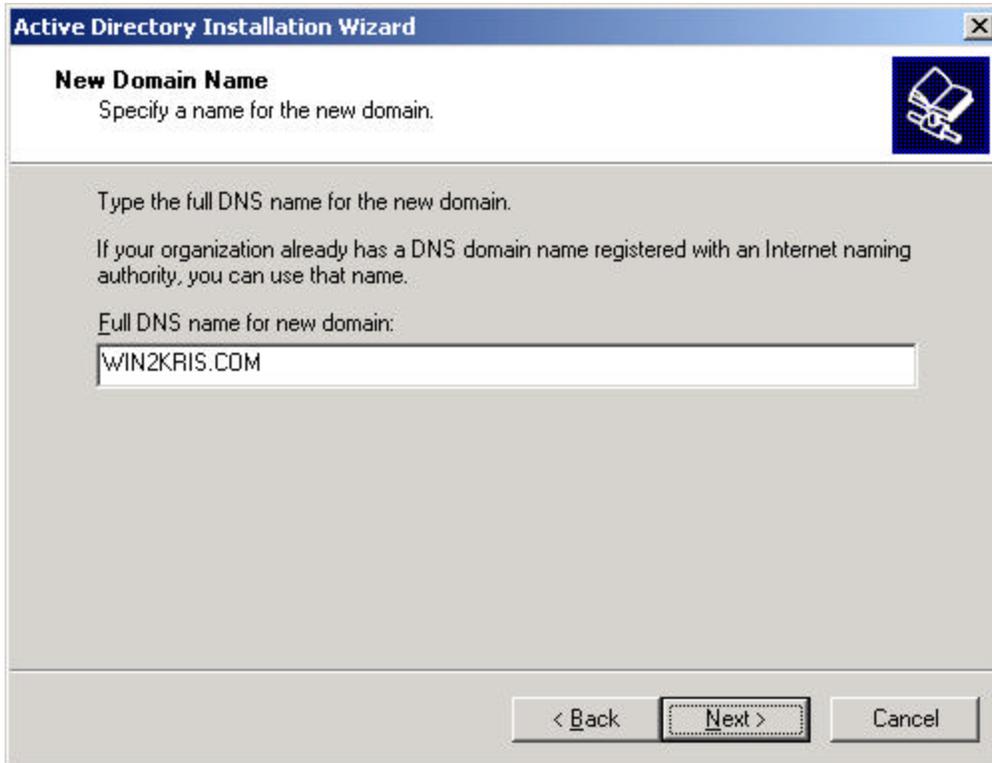
NOTE	The system will take a few minutes and show the hour clock on the display before moving to next screen (This is normal behavior).

8. NetBIOS Domain Name: accept default "Domain NetBIOS name". Click **Next**.
(default)
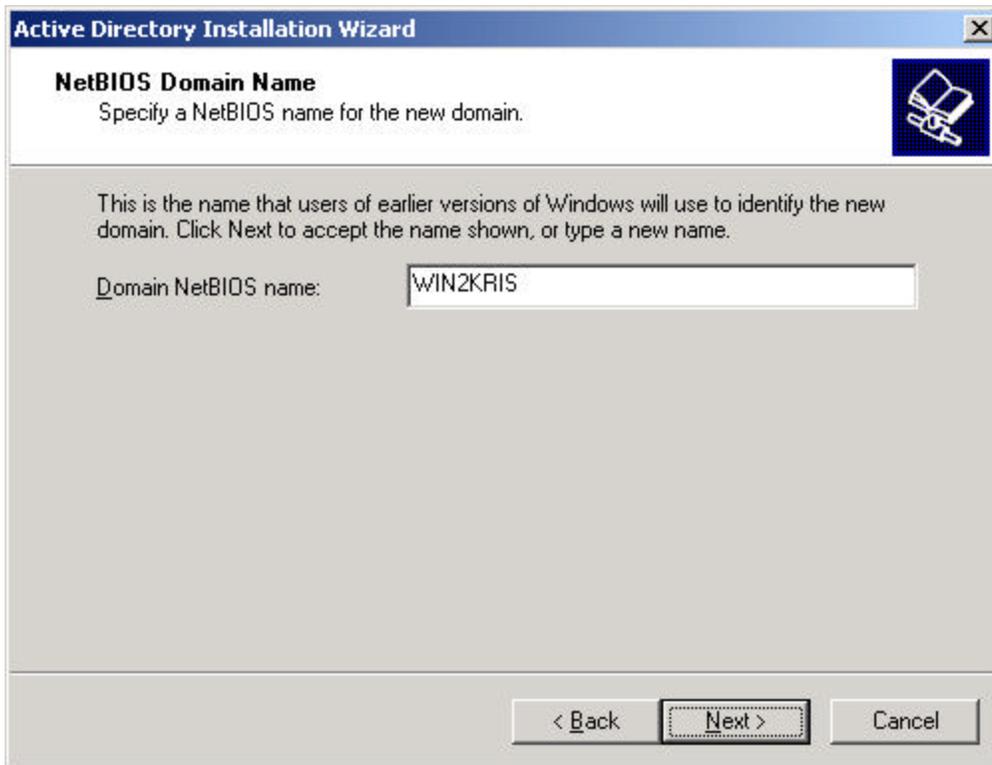
9. Database and Log Locations: accept default values: Database Location:
C:\WINNT\NTDS Log Location: C:\WINNT\NTDS. Click **Next**. (default)

10. Shared System Volume: accept default values: Folder Location:
C:\WINNT\SYSVOL. Click **Next**. (default)
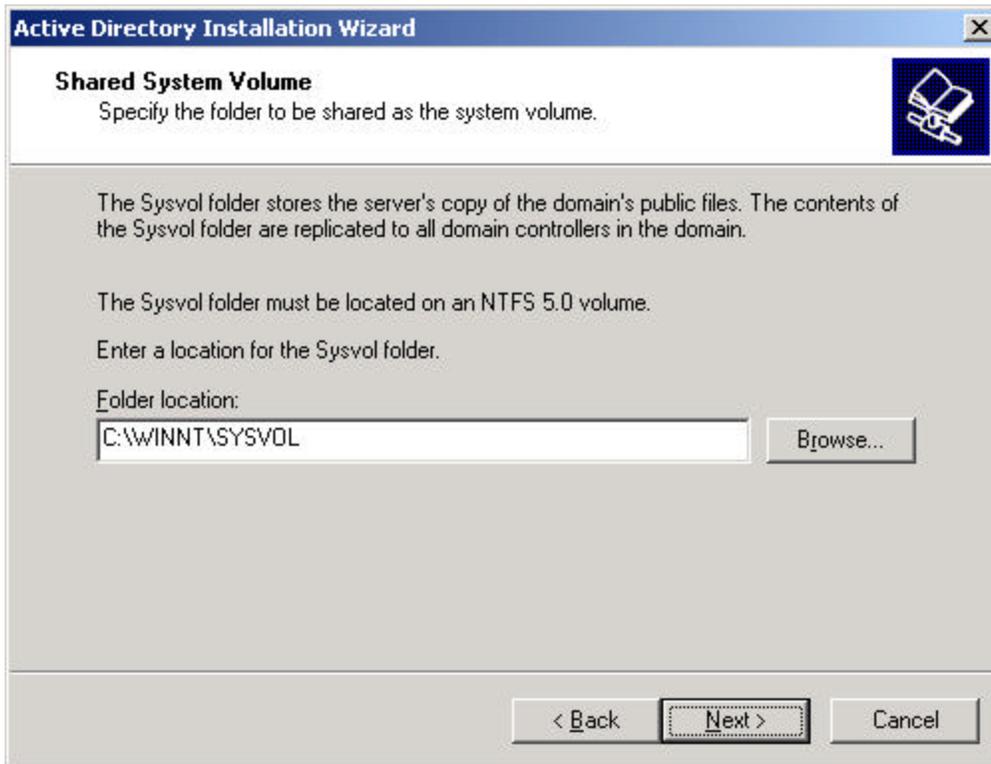
11. The system will display a dialog box that reads, "The Wizard can not contact the
DNS Server… Confirm your DNS configuration, or install and configure a DNS
server on this computer." Click **OK**.

12. Configure DNS: Select the "Yes, Install and configure DNS on this computer" radio button. Click **Next** to continue. (default)
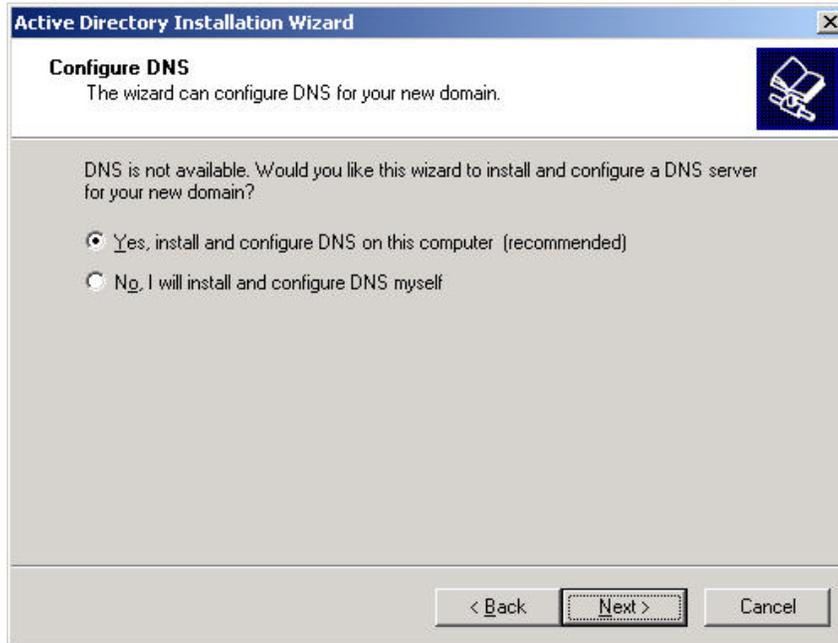
13. At the Permissions: window Select the "Permissions compatible with pre-Windows 2000 Server" radio button. Click **Next** to continue. (default)
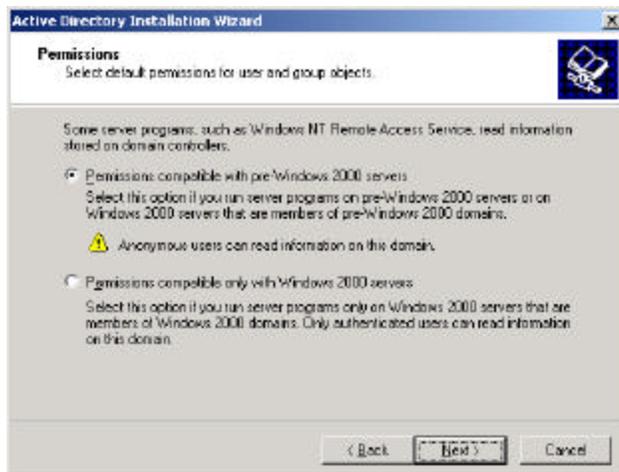
14. Enter the Administrator password and click **Next** to continue.

NOTE: If you get an error message stating that system cannot connect to domain, temporarily connect the NIC to a network hub, return to this screen, and then click **Next**. Once active directory begins configuring, you can disconnect NIC cable.

15. Review the Summary display and click **Next** to continue (default)

Active Directory Installation Wizard

Summary
Review and confirm the options you selected.

You chose to:

Configure this server as the first domain controller in a new forest of domain trees.

The new domain name is "WIN2KRIS.COM". This is also the name of the new forest.

The NetBIOS name of the domain is "WIN2KRIS"

Database location: C:\WINNT\NTDS
Log file location: C:\WINNT\NTDS
Sysvol folder location: C:\WINNT\SYSVOL

The DNS service will be installed and configured on this computer.

To change an option, click Back. To continue, click Next.

< Back   Next >   Cancel

16. The system will start configuring the active directory display. This will take a few minutes to complete.

Configuring Active Directory...

The wizard is configuring Active Directory. This process can take several minutes or considerably longer, depending on the options you have selected.

Securing LanManServer

Cancel
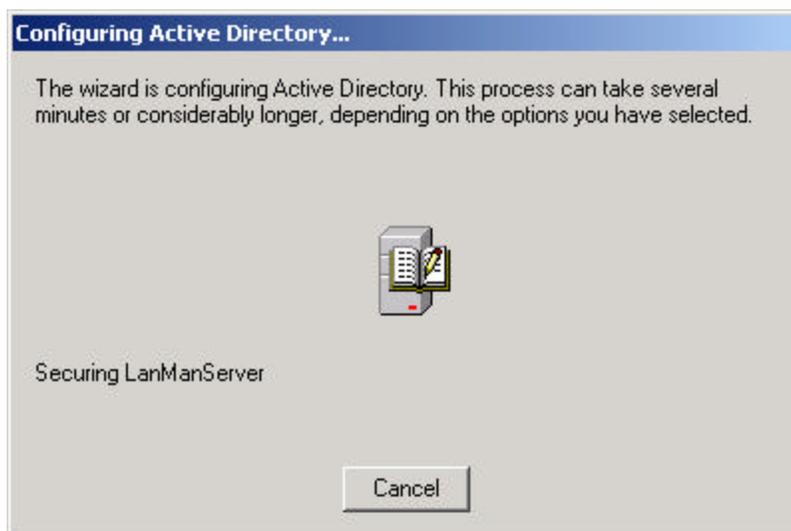
17. If prompted, insert Microsoft Windows 2000 CD-ROM and click **OK** to continue.

18. Configuring the active directory display shows again. Click **Finish** to close the Wizard utility. This completes the active directory installation.

19. Click **Restart Now** to reboot the system. Remove CD-ROM if present.

E. Install DHCP and Remote Installation Services Components.

1. Click **Start** | **Settings** | **Control Panel**.

2. Double-click on **Add/Remove Programs** icon in the control panel folder.

3. Click on **Add/Remove Windows Components** icon (located on left panel). This displays the "Windows Components Wizard".

4. Deselect **Networking Services** and Re-select **Networking Services**. Next, select **Remote Installation Services**. Click **Next**.

NOTE	The reason for deselecting **Network Services** in the above step is to insure that this module is installed on your system. It could appear that it is already installed if the checkbox is already selected and yet it isn't actually installed.
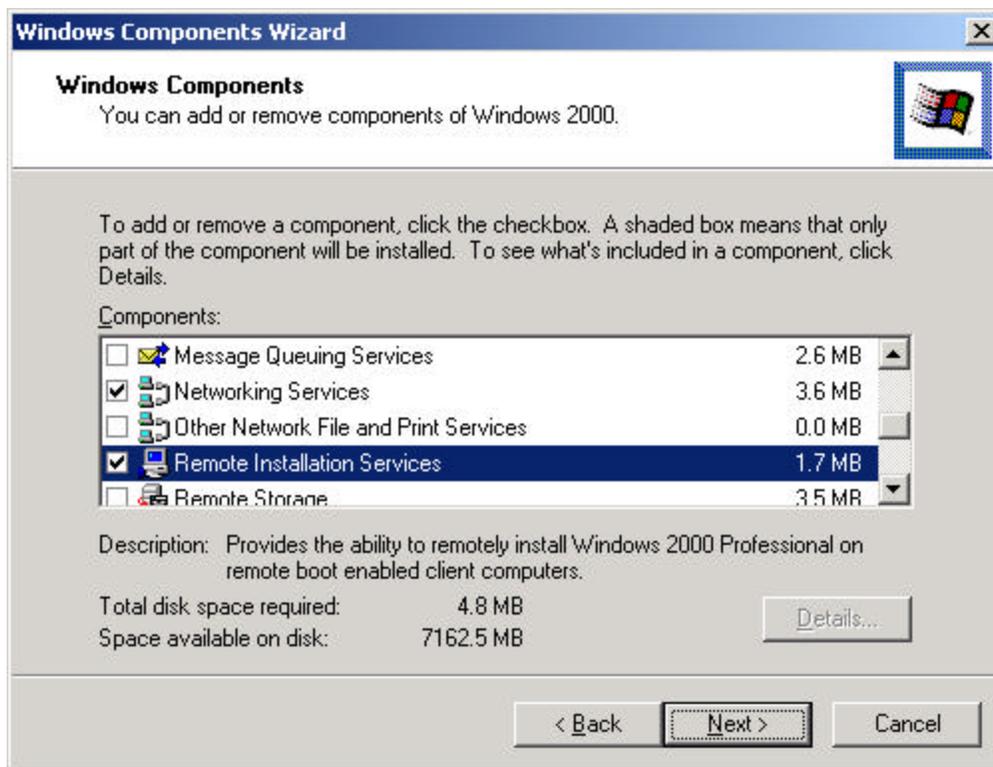
5. After the two services are installed, close all windows related to Add/Remove Programs

NOTE	Step 6 and step 7 are required with the installation of Service Pack 2. These two steps allow for the creation of an Advanced Server image on the secondary hard drive. Microsoft tends to incorporate patches in their next Service Pack release. It is anticipated (based on the file name shown in step 7) that these two steps will not be necessary when Service Pack 3 is available. Please check the Microsoft release notes for Service Pack 3 when Service Pack 3 becomes available to see if this problem has been addressed.

6. To create a RIS server image that handles Microsoft Windows 2000 Advanced Server, install the Microsoft patch. See the Web site at:
http://support.microsoft.com/directory/article.asp?ID=KB;EN-US;Q308508&
This Web page contains a detailed description of the Advanced Server situation.

7. Assume that the downloaded patch is stored at C:\temp (it could be any directory of your choosing) with the filename as follows:

Q308508_W2K_SP3_X86_EN.exe

Use Microsoft Windows Explorer to move to C\temp (if this is the folder you selected) and execute the above file.

8. Reboot the system.

NOTE:	If you did not previously setup the NIC to use a Static IP, the system will advise you to change from DHCP to static. Insert the Microsoft Windows 2000 CD if prompted. Select **Finish**, then reboot.

NOTE: The three Windows screens on this page will be seen only if you did not previously configure the NIC with a static IP address.

Optional Networking Components

This computer has at least one dynamically assigned IP address. For reliable Windows Internet Name Service (WINS) operation, you should use only static IP addresses. You will now have the option to change this dynamically assigned IP address.

OK

Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically
⦿ Use the following IP address:

IP address: 100 . 1 . 1 . 1
Subnet mask: 255 . 255 . 255 . 0
Default gateway: .   .   .

○ Obtain DNS server address automatically
⦿ Use the following DNS server addresses:

Preferred DNS server: .   .   .
Alternate DNS server: .   .   .

Advanced...

OK   Cancel

Microsoft TCP/IP

The DNS server list is empty. The local IP address will be configured as the primary DNS server address because Microsoft DNS server is installed on this machine.

OK

31

F. Configure DHCP.

1. Click **Start** | **Programs** | **Administrative Tools** | **DHCP**.

2. Click on your server name. Click on **Action** | **New Scope**. This displays the "New Scope Wizard". Click **Next**.
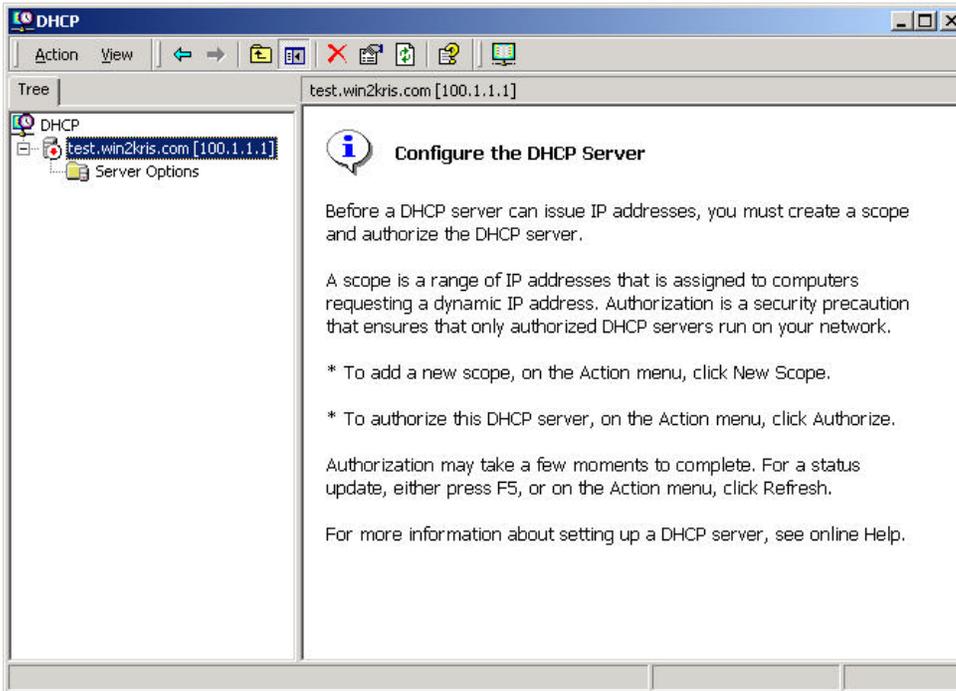
3. For the Scope Name window, enter a name and description. Click **Next**.

4. IP Address Range: Specify a Start IP Address and End IP Address. Click **Next**.

5. Add Exclusions: Click **Next**. (default)

6. Lease Duration: Click **Next**. (default)
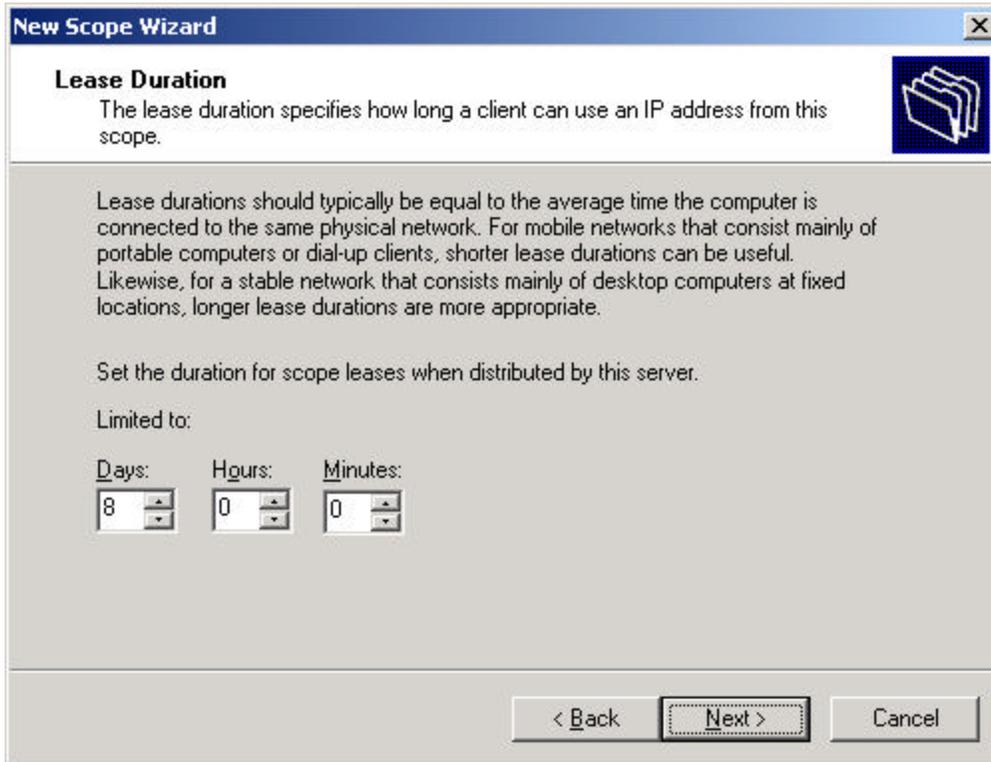
7. Configure DHCP Options: Select **No** (default is yes). Click **Next**.
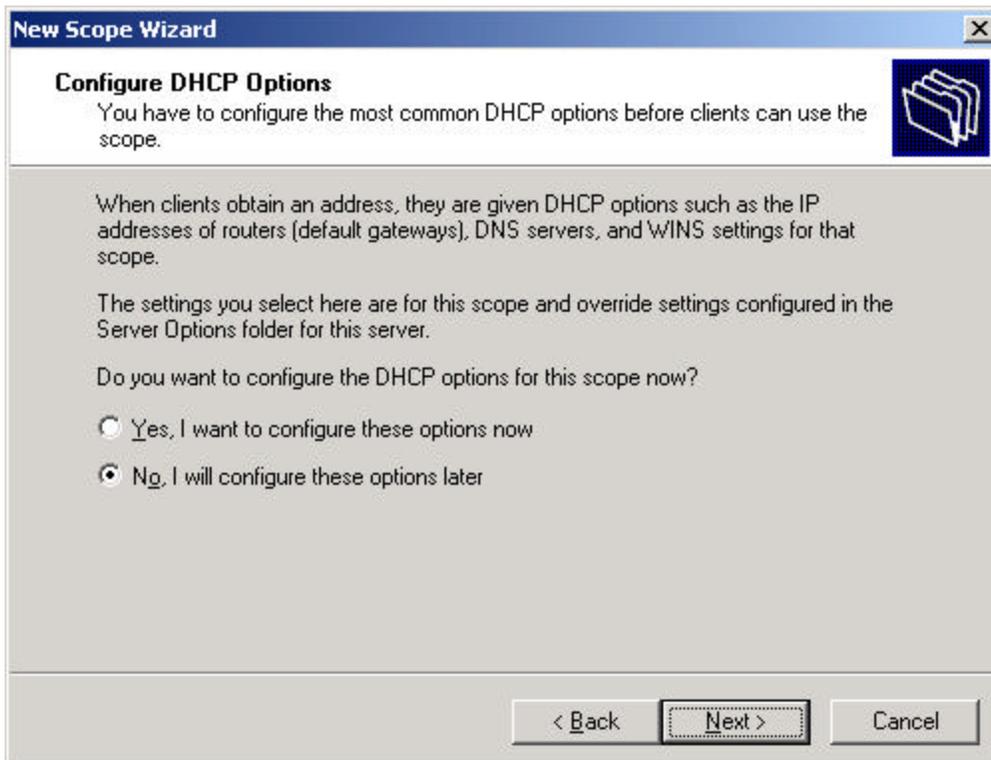
8. Click **Finish**

9. Click on your server name. Click on **Action** | **Authorize** .
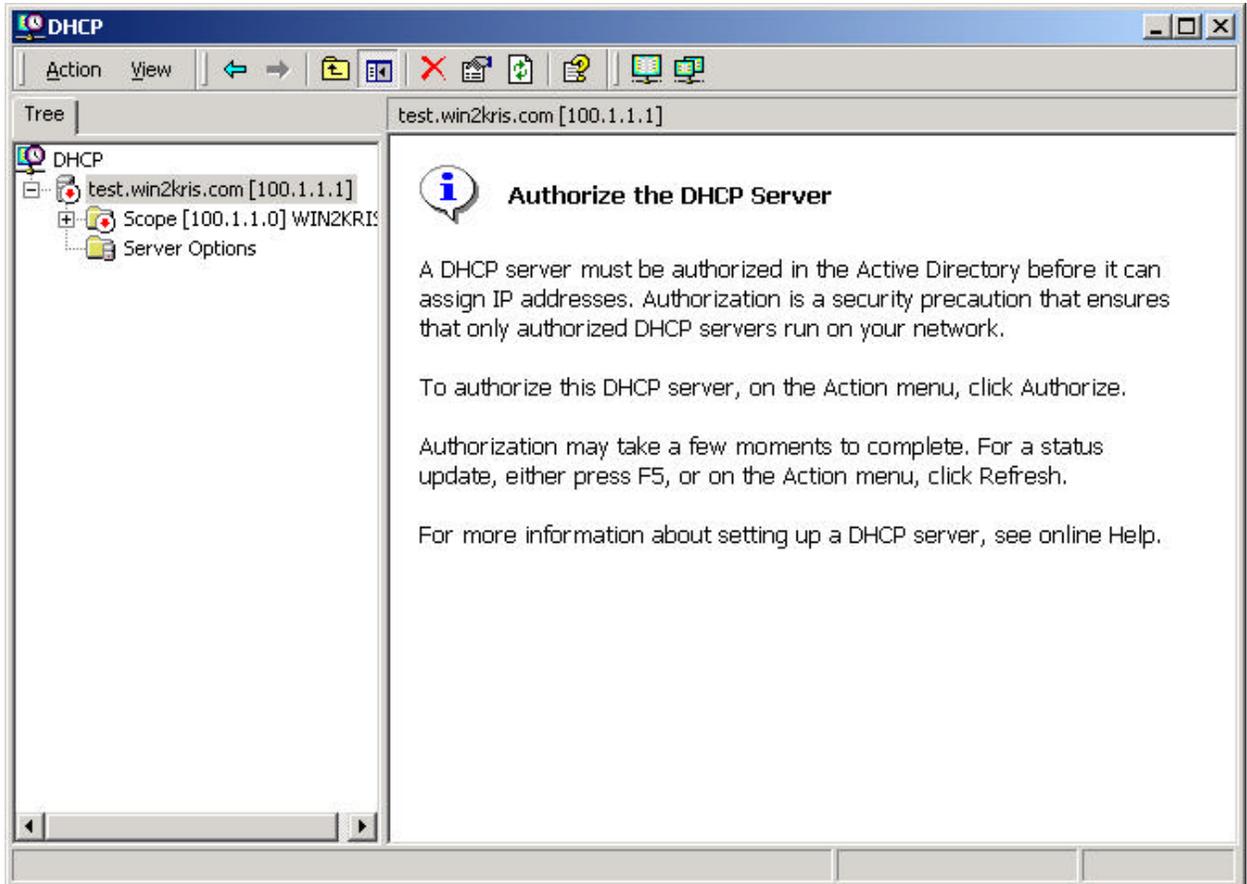
10. Click on your Scope. Click on **Action** | **Activate**.

11. Click on your Server name.

NOTE	It will take a few moments to complete activation. Select **F5** to refresh.

12. Close the DHCP config screen when the server becomes "active".

G. Configure Remote Installation Services

NOTE	Read entire section before proceeding.

OVERVIEW

Remote Installation Services is designed to install Microsoft Windows 2000 products onto clients using a network install method.

PROCEDURE

1. Click **Start** | **Settings** | **Control Panel**.

2. Double-click on **Add/Remove Programs**.

3. Click **Add/Remove Windows Components**.

4. Click **Configure** button in Configure Remote Installation Services window.
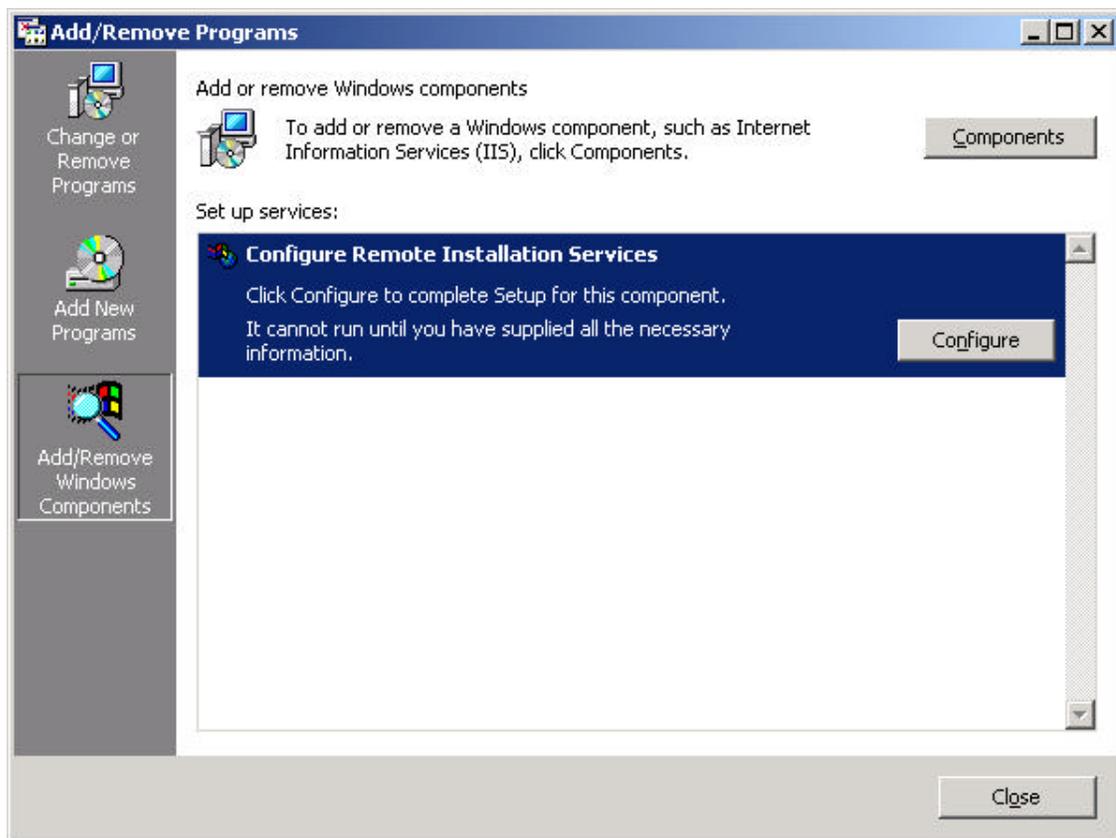
5. Remote Installation Services Setup Wizard: Click **Next**. (default)

NOTE	The remote installation services must reside on a different physical drive than the operating system. For example, assume the first physical disk is called the C: drive and only has one partition. The second physical drive is called the D: drive and has only one partition. With these assumptions follow the next step below.

6. For the remote installation folder location, do not place the path on the root drive (i.e. C: drive). that has the OS already on it. The best place to put the image is on the second physical disk. For example, *storagedrive***:\RemoteInstall**. In our example, this would be the D: drive. Thus the folder location would be D:\RemoteInstall. Click **Next**.
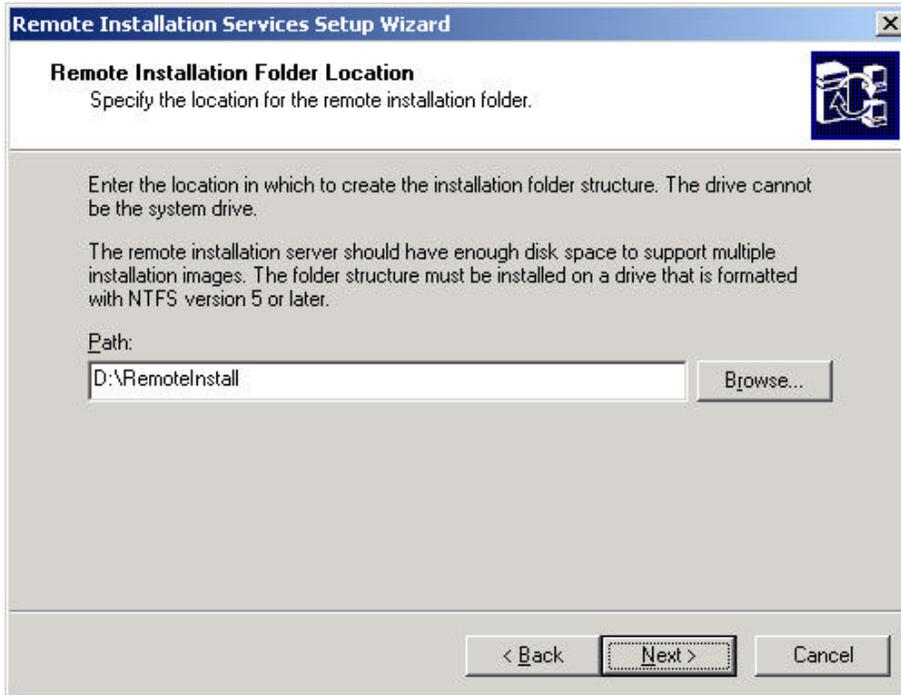
7. Initial Settings: Check "Respond to client computers requesting service". Click **Next**.
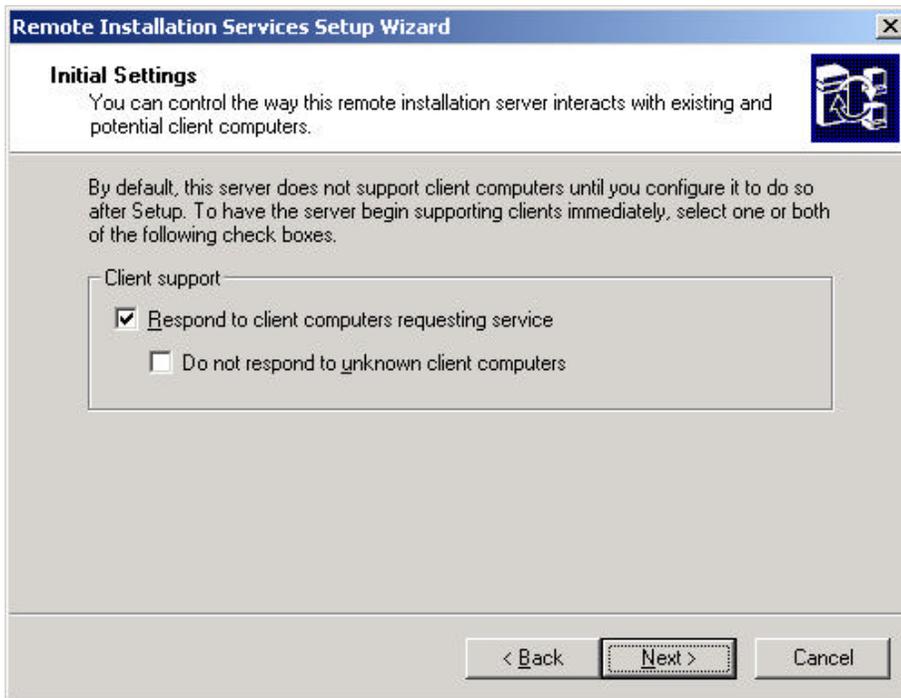
8. Installation Source Files Location: Assuming the CD-ROM is device E:, set the path to E:\I386 and place the Win2K Advanced media in the CD-ROM device. Click **Next**.
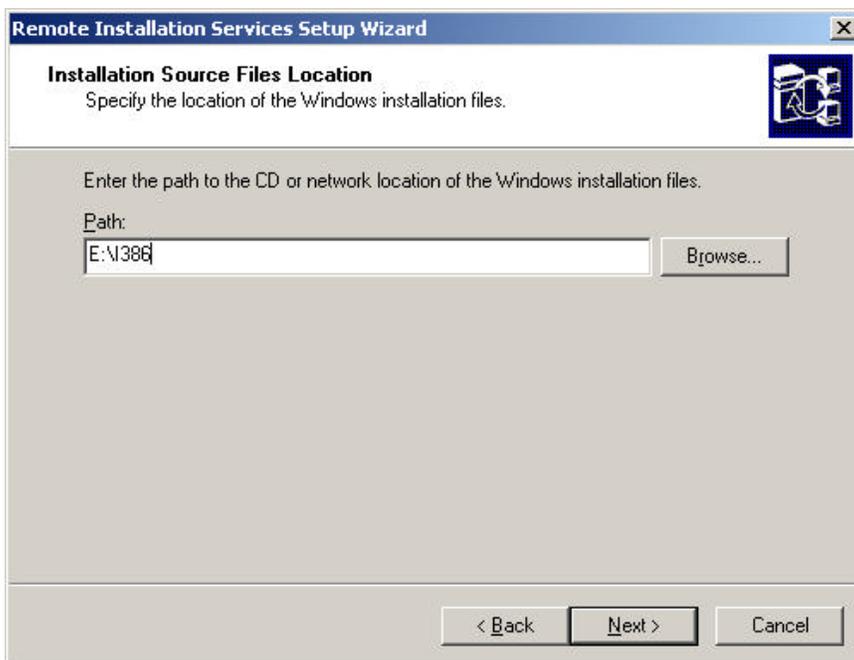
9. <u>Optional</u> - For the Microsoft Windows Installation Image Folder name, if another Microsoft Windows product is desired, suggested names are:

- **win2000.adv** for Microsoft Windows 2000 Advanced Server

- **win2000.srv** for Microsoft Windows 2000 Server

- **win2000.pro** for Microsoft Windows 2000 Professional

Then, click **Next**.
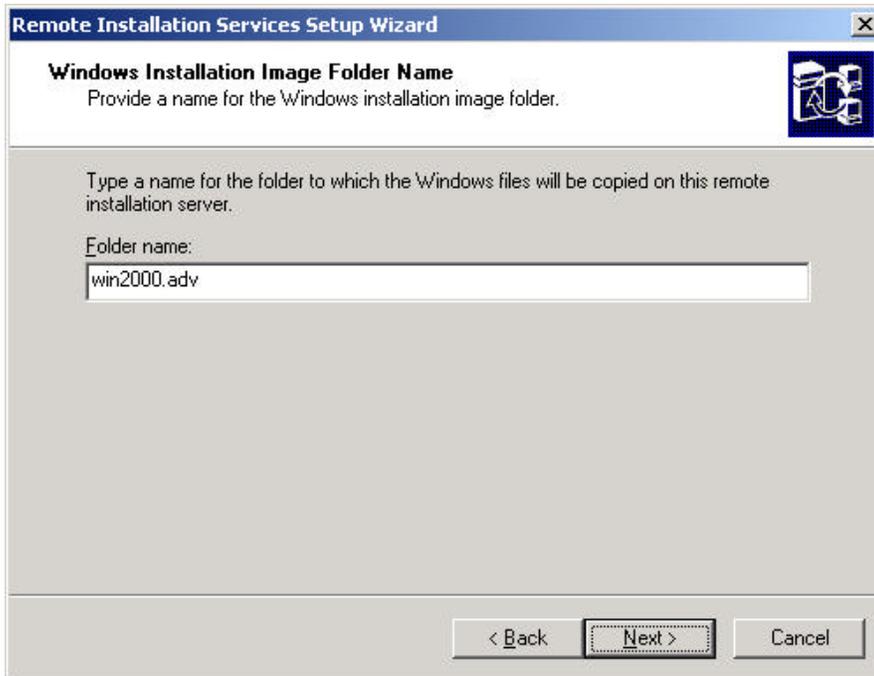
10. For the "Friendly description:" and for the "Help Text:" areas, verify the description and the text. After the patch is installed, the default message in the "Help text:" window below will contain the words "Windows Professional Server". Please correct the statement to the name shown in the "Friendly description:" window that follows. Click **Next**.
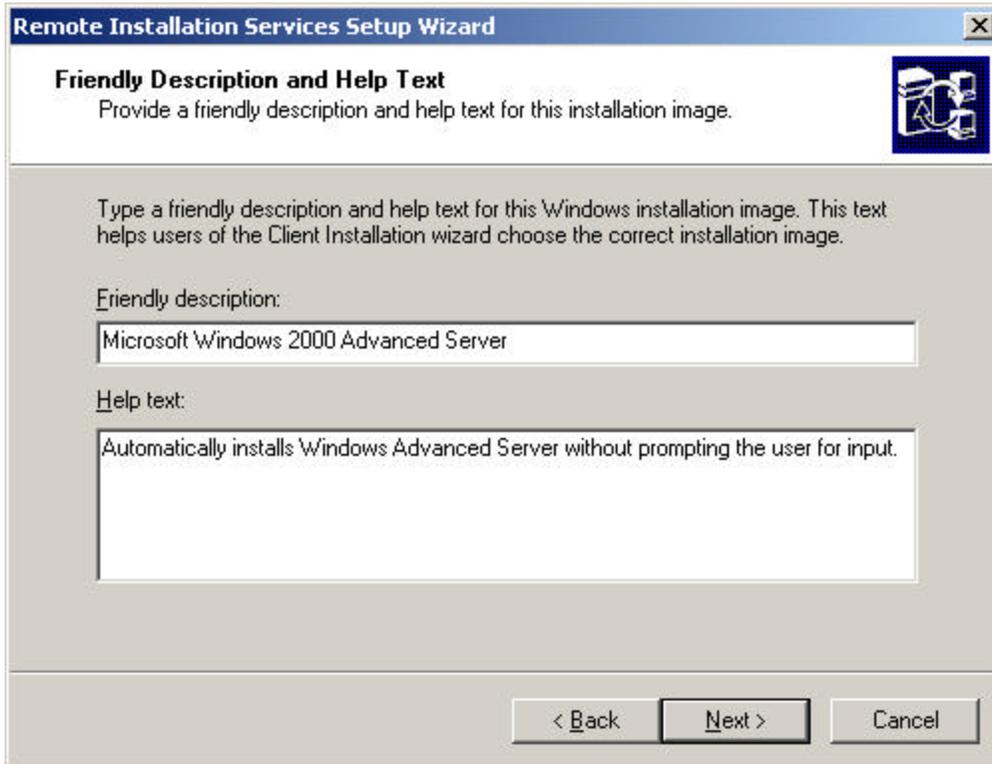
Remote Installation Services Setup Wizard

Friendly Description and Help Text
Provide a friendly description and help text for this installation image.

Type a friendly description and help text for this Windows installation image. This text helps users of the Client Installation wizard choose the correct installation image.

Friendly description:

Microsoft Windows 2000 Advanced Server

Help text:

Automatically installs Windows Advanced Server without prompting the user for input.

< Back   Next >   Cancel

11. At the "Review Settings" window, click **Finish**.
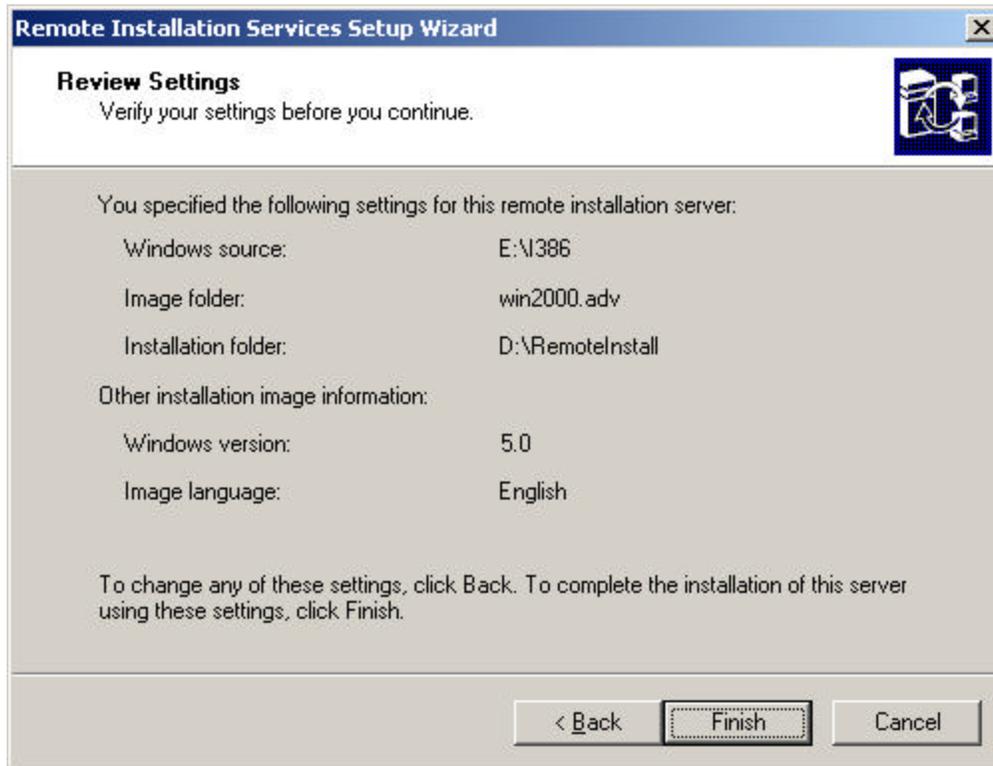
12. Click **Done**.

13. Close **Add/Remove Programs** window.

H. Use RIS to install Microsoft Windows 2K Adv Server to the Blade Server

1. Connect stand-alone RIS server to same network as the bc1100 is on. If possible, disconnect all other systems from network. This will ensure that there are no possible network conflicts. Connect a USB keyboard and mouse to the bh7800. Also connect a VGA monitor to the bh7800.

2. Remove all mass storage devices from the blade server including the USB floppy drive, the USB CD-ROM drive and any storage blades currently installed.

NOTE:	This process cannot be completed using the RMC text console because the Microsoft Windows installation changes to a Graphical User Interface (GUI) after the reboot. The text console is not a GUI device. Thus, a local VGA monitor, USB keyboard and mouse are required for these steps.

Verify the bc1100 will start-up using the Intel Boot Agents Version 3.0.03

3. Press the **F2** key at start-up.

```
Textconsole on                                                    _ □ ×
PhoenixBIOS 4.0 Release 6.1.0
Copyright 1985-2001 Phoenix Technologies Ltd.


bc1100 Rls 1.5
Beta-B

CPU = Pentium(R) III processor   700 MHz
636K System RAM Passed








Press <F2> to enter SETUP

  Close    ☑ Alt    □ Ctrl                                        Help
Warning: Applet Window
```
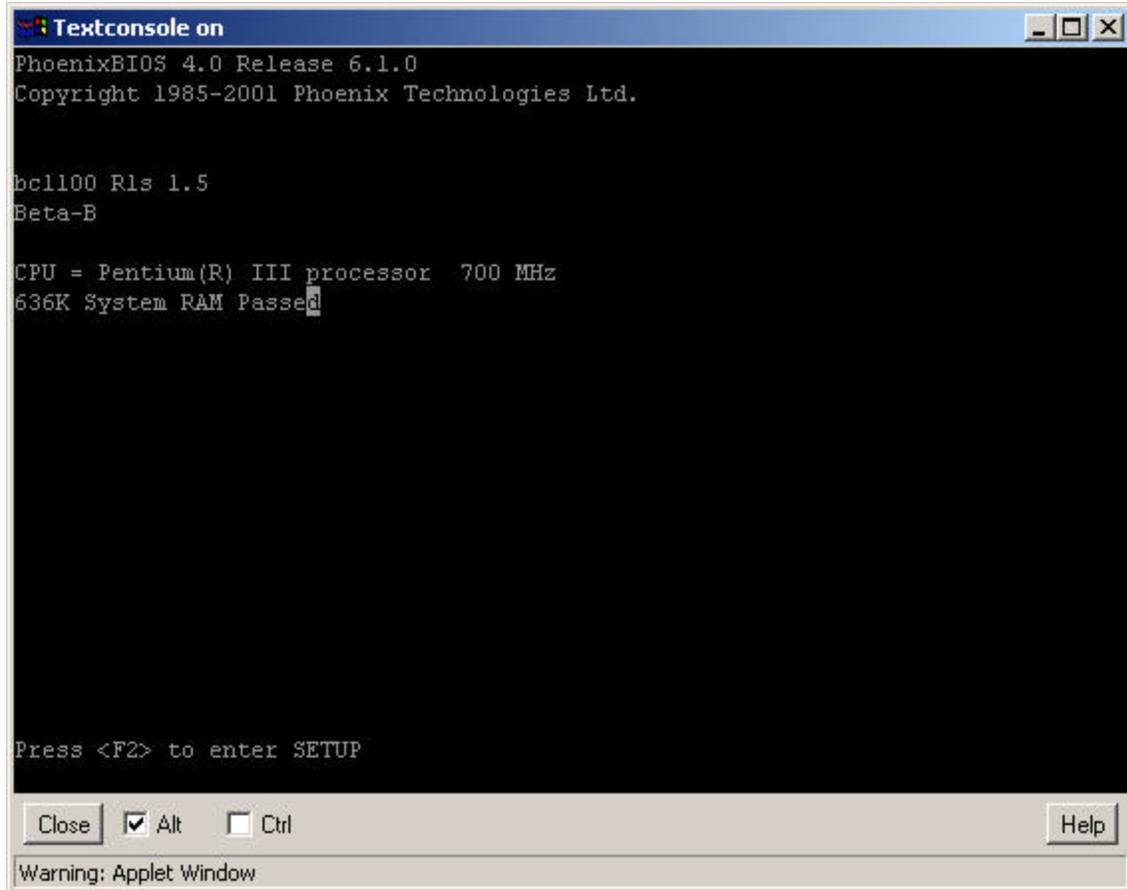
4. The window below is the "System Configuration Summary" after selecting the F2 key. Select **F4-BOOT OPTIONS** to continue.

```
Textconsole on                                                    _ □ ×

                    SYSTEM CONFIGURATION SUMMARY

 F1-SYSTEM SUMMARY                      SYSTEM SUMMARY

 F2-SYSTEM SETUP       Pentium III:  700 MHz        Diskette A :  1.44 MB, 3½"
                       Sys Ram    :  640 KB         Hard Disk0 :  30006MB
 F3-HARD DISK SETUP    Ext Ram    :  523264 KB      Hard Disk1 :  None
                       Cache Ram  :  256 KB         Hard Disk2 :  None
 F4-BOOT OPTIONS       Display    :  EGA \ VGA      Hard Disk3 :  None
                       BIOS Date  :  05/14/02       COM Ports  :  03F8 02F8
 F5-BIOS OPTIONS       System ROM :  E889 - FFFF    PS/2 Mouse :  Installed

 F6-PERIPHERIALS

 F7-PCI CONFIG

 F8-CACHE CONFIG

 F9-CHIPSET CONFIG
                        F(KEY): Select/Execute, ↑↓: Select, ENTER: Execute
 F10-EXIT                          ESC: Exit and Reboot

                        bcl100 - Hewlett Packard


 Close   ☑ Alt    ☐ Ctrl                                            Help
 Warning: Applet Window
```

5. Change the boot order so "Intel ® Boot Agent Version 3.0.03" is at the top of the list as shown below in the "Boot Options Configuration Utility" screen.
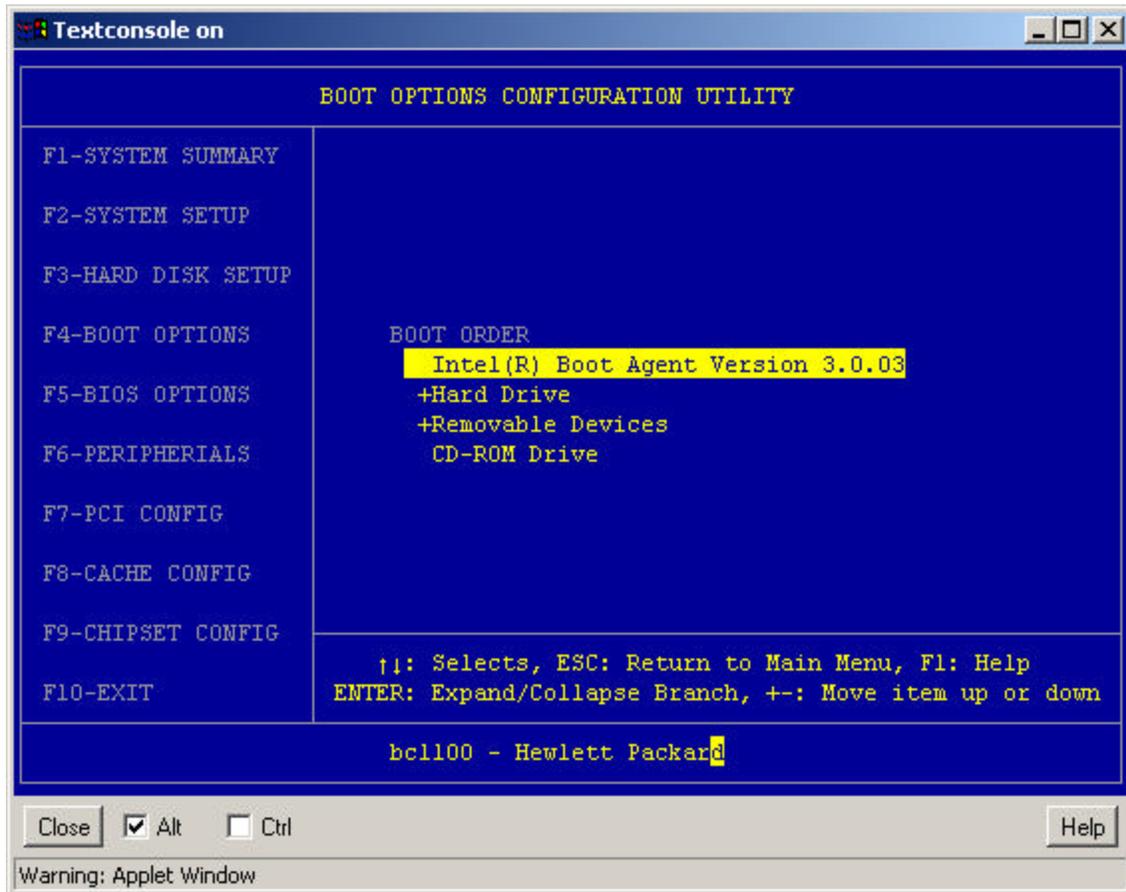
6. Press the **ESC** key to return to the left hand menu. Select **F10-EXIT**. Press **ENTER** This action displays the following dialog box. Press **ENTER** to save and exit.

| NOTE | This causes the system to reboot. |

| NOTE | As the new boot starts, watch for the assignment of a DHCP IP address. Subsequently, the bc1100 PXE code will broadcast for a RIS server. |
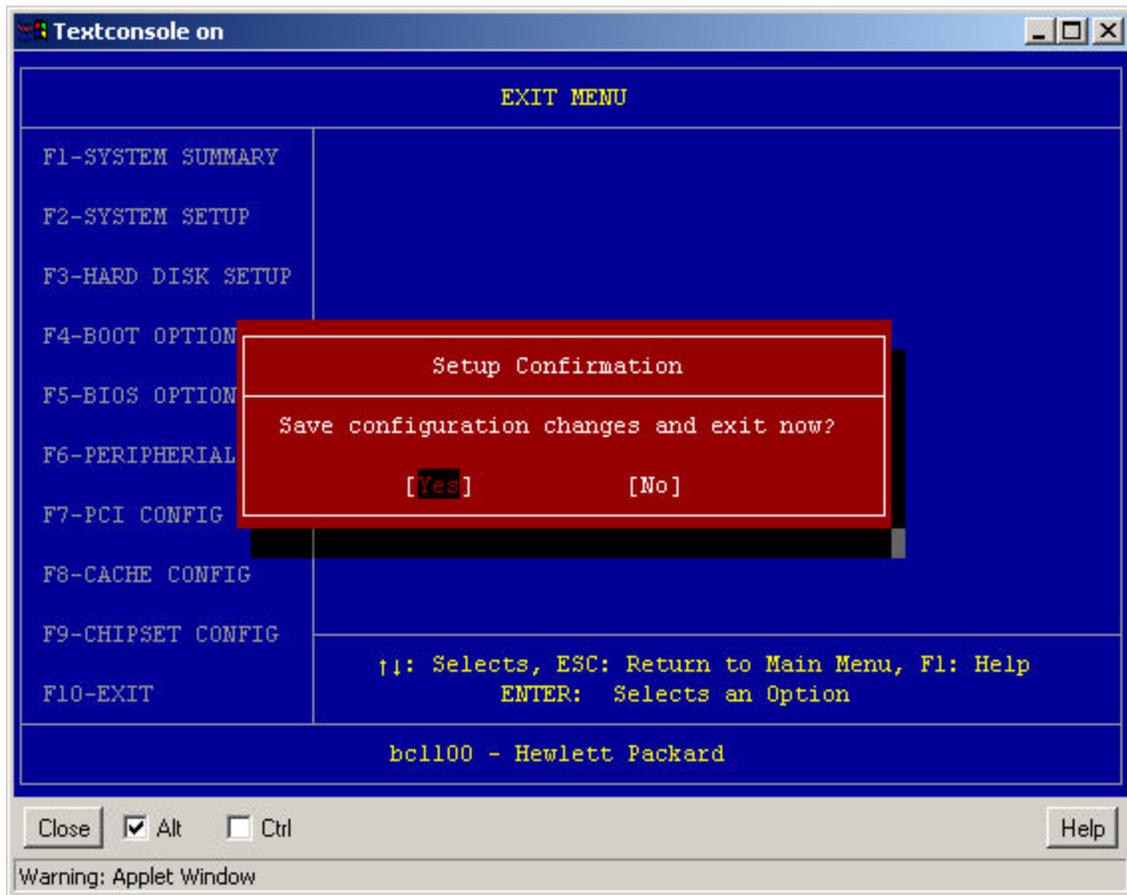
7. Press the **F12** key when you see "Press F12 for network boot" on the screen. You only have a few seconds to do this.

8. When the bc1100 server blade connects to the RIS, you will see the following
   Microsoft Windows RIS installation screen, "Client Installation Wizard". Press
   Enter to continue.

```
Textconsole on                                          _ □ ×

 Client Installation Wizard                                Welcome


   Welcome to the Client Installation wizard. This wizard helps you
   quickly and easily set up a new operating system on your computer. You
   can also use this wizard to keep your computer up-to-date and to
   troubleshoot computer hardware problems.

   In the wizard, you are asked to use a valid user name, password, and
   domain name to log on to the network. If you do not have this
   information, contact your network administrator before continuing.












 [ENTER] continue

 Close   ☑ Alt    ☐ Ctrl                                    Help

Warning: Applet Window
```

9. Next, log into the RIS server. Change fields using the **Tab** key.

NOTE:	The username discussed on this screen is the username that you use to login to the RIS server. By default, that is Administrator. Since the RIS server is on the same subnet as the bc1100, it is not necessary to supply a domain name. The user name and password are not case sensitive on this display.

```
Textconsole on                                                    _ □ X

  Client Installation Wizard                                      Logon


   Type a valid user name, password, and domain name. You may use the
   Internet-style logon format (for example: Username@Company.com).


    User name:    ADMINISTRATOR
     Password:    ****
  Domain name: [ _                                                  ]



   Press the TAB key to move between the User name, Password, and Domain
   name fields.






  [ENTER] continue      [ESC] clear      [Fl] help      [F3] restart computer

  Close   ☑ Alt   □ Ctrl                                          Help

 Warning: Applet Window
```

NOTE	Select Windows 2000 Advanced Server, if prompted. This will only happen if you have placed multiple operating systems on the RIS server. Once logged in, the Windows 2000 Advanced Server download will begin.

50

10. Below is the first of several screens to appear during the RIS Windows 2000
    Advanced Server install. Press **Enter** to continue.

11. At the screen below, press **Enter** to continue.

```
Textconsole on                                              _ □ ×
  Client Installation Wizard                    Installation Information


   The following settings will be applied to this computer installation.
   Verify these settings before continuing.

   Computer account: Administrator1

   Global Unique ID: 00000000000000000000000306E1A0554

   Server supporting this computer: EMLRIS


   To begin Setup, press ENTER. If you are using the Remote Installation
   Services boot floppy, remove the floppy diskette from the drive and
   press ENTER to continue.




  [ENTER] continue

  Close  ☑ Alt  ☐ Ctrl                                        Help
 Warning: Applet Window
```

Soon the installation will start formatting the bc1100 disk. You will see the standard
Microsoft Windows screen progress during the installation process.

12. Click **Finish** at the final Microsoft Windows screen. When you click the **Finish**
    button, the bc1100 server blade will automatically reboot. This completes the
    download of the OS from the RIS server.

13. During the reboot, use the **F2** key to enter the bc1100 BIOS setup screens to change the boot order to the hard drive setting.

```
Textconsole on                                              _ □ ×

                   BOOT OPTIONS CONFIGURATION UTILITY

  F1-SYSTEM SUMMARY

  F2-SYSTEM SETUP

  F3-HARD DISK SETUP

  F4-BOOT OPTIONS          BOOT ORDER
                            +Hard Drive
  F5-BIOS OPTIONS           +Removable Devices
                             CD-ROM Drive
  F6-PERIPHERIALS            Intel(R) Boot Agent Version 3.0.03

  F7-PCI CONFIG

  F8-CACHE CONFIG

  F9-CHIPSET CONFIG
                     ↑↓: Selects, ESC: Return to Main Menu, F1: Help
  F10-EXIT           ENTER: Expand/Collapse Branch, +-: Move item up or down

                          bc1100 - Hewlett Packard

  Close   ☑ Alt   ☐ Ctrl                                      Help

 Warning: Applet Window
```

14. Press the **F4-BOOT OPTIONS** key to change the BOOT ORDER to put **"+Hard Drive"** at the top of the list.

NOTE	If this is not done, the bc1100 server blade will connect again to the RIS server using the PXE process, which leads to a new download.

15. After making the boot order changes, use the **F10** key to exit. The system will reboot off the bc1100 hard disk installation of the Window 2000 Advanced Server.

NOTE	At the completion of this reboot, the standard GUI login screen will appear. Like all initial installations there is no password assigned to the Username "Administrator". Click the **OK** button on the GUI to continue configuration for the environment.

16. Install the latest Service Pack and the latest upgrades pertinent to your environment.

17. Insert the storage blade into the chassis. Microsoft Windows 2000 should automatically detect the new hardware, prompting the user for the appropriate driver.

18. There are there are a number of other system administration tasks that must be considered.

    - Add a password to the administrator account

    - Add additional user accounts to this server

    - Initialize and format the disks on the storage blade

    - Partition these additional disks on the storage blade

    - Check the "Local Area Connection Properties" window for proper "Internet Protocol (TCP/IP) Properties" window (e.g. static IP, subnet mask, gateway, DNS server addresses)

19. There maybe more system administration tasks that need to be done so this blade server works well in the environment.

I.   Establishing a Remote GUI Session

The Microsoft Windows 2000 operating system is loaded. Next, set up a remote Graphical User Interface (GUI) so the blade server can be controlled remotely. Two methods are discussed here. The first method is using Terminal Services and the second method is using Symantec's pcAnywhere software.

Terminal Services Installation Overview

Terminal Services provides access to Windows-based applications for a variety of client hardware devices. Applications are installed on the server and accessed by clients through terminal emulation.

Requirements

- Microsoft Windows 2000 Advance Server
- Microsoft Windows 2000 Server
- Microsoft Windows 2000 Advance Server or Server CD
- External USB Floppy Drive (Imation: FD-05PUB)
- External USB CD-Rom Drive (Sony: CRX85U)
- Two (2) blank 3.5" floppy disk

NOTE	Instructions are intended for the hp server bc1100 blade. USB floppy and USB CD-ROM drives are not required, if the machine has internal floppy and CD-ROM drives.

The setup process is the same for both Microsoft Windows 2000 Server and Microsoft Windows 2000 Advance Server.

Server Setup

The server must have Terminal Services installed. To install, login as "Administrator" and perform these steps.

1. Click **Start** | **Settings** | **Control Panel**   Double click the Add/Remove Programs icon.

2. Click on "Add/Remove Windows Components" on the left

3. Scroll down, check the "Terminal Services" box . Click **Next.**

4. Select "Remote Administration Mode" Click **Next.**

5. Connect the USB CD-Rom Drive. Insert the Microsoft Windows CD. Select the "I386" directory. Open. Click **OK.**

6. When the installation is completed, click **Finish** to reboot.

7. Login as "Administrator" after the system has rebooted.

8. You must create installation disks for the Terminal Services client.

9. Click **Start** | **Programs** | **Administrative Tools** | **Terminal Services** Client Creator

10. Select "Terminal Services for 32-bit x86 Windows". Do not click **OK. G**o to the next step.

11. Connect the USB Floppy Drive. Insert a 3.5" floppy disk. Select destination drive "B:" Go to next step.

12. Click on "B:" (not the scroll up-scroll down buttons) to highlight it.

13. Check "Format Disk" box. Click **OK.**

14. An "Insert Floppy" will pop up, make sure it refers to DISK1 in drive "B:" and not A: Click **OK.**

15. Click **Yes** to confirm formatting the floppy.

16. Insert the second floppy when prompted. Click **OK** -> **Yes**

17. Click **OK** and **Cancel** once the process has completed.

Client Setup

1. Connect the USB floppy drive to the client system.

2. Insert "Disk1" from the Server Setup instruction mentioned above.

3. Login as "Administrator".

4. Run "setup.exe" from DISK1 in the USB floppy drive.

5. Select "Continue".

6. Fill in "Name" & "Organization" information. Click **OK.** Click **OK**

7. Follow the on-screen instructions for the license agreement.

8. Select the installation location or use the default.

9. Click on the large Terminal Services button to install.

10. Follow the on-screen instruction, insert Disk2 when prompted to do so.

11. Click **OK** when done.

Establishing Terminal Services Connection

1. On the client machine select **Start** | **Programs** | **Terminal Services Client** -> Terminal Services Client

2. Select the "Server" and the "Screen Area".

3. Click **Connect** to connect.

4. Login to the target server.

5. Within the Terminal Services Client window, you should see the target server's desktop shown below.

Symantec pcAnywhere Installation Overview

pcAnywhere uses a server-client relationship. It supports several connection types such as network, modem, and direct connections. The software is also separated into server (host) and client (remote) packages. The user may choose to install either one or both parts of the software.

The software requires initialization configuration on both the server and client. Once the configuration is completed, the software must be executed on the server to answer the client calls. There is an option to have pcAnywhere started automatically with Microsoft Windows 2000. On the client machine, the user will specify where and how to connect to the server.

For documentation, start with the pcAnywhere User's Guide. Complete documentation for Symantec pcAnywhere is on the Web at http://www.symantec.com/pcanywhere/

Also, check the Symantec Web site for answers to frequently asked questions, troubleshooting tips, online tutorials, and the latest product information.

J. Disable Hibernation Mode

After the Microsoft Windows 2000 operating system is installed, the hibernation mode must be turned off.

1. Select **Start** | **Settings** | **Control Panel**.

2. Right double click the **Power Options** icon.
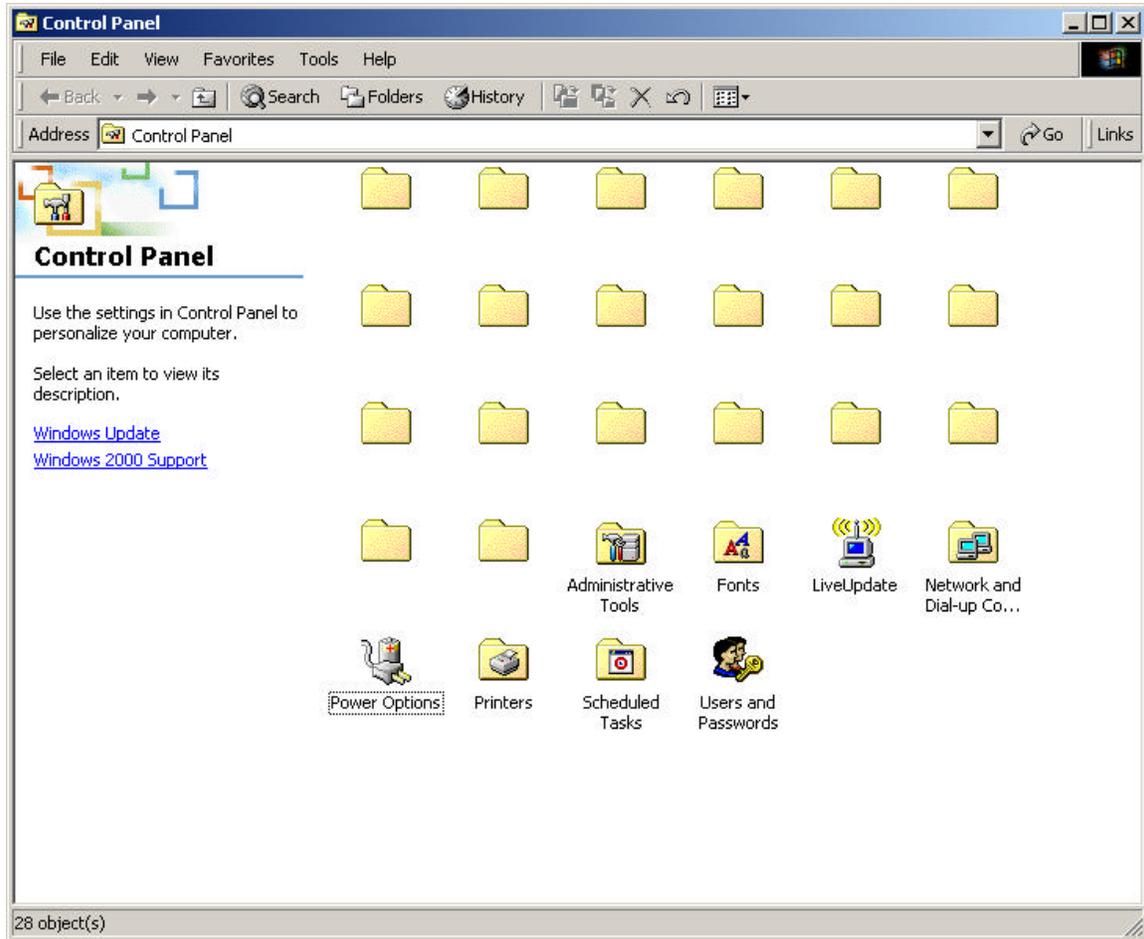
3. Select the **Hibernate** tab as shown below.
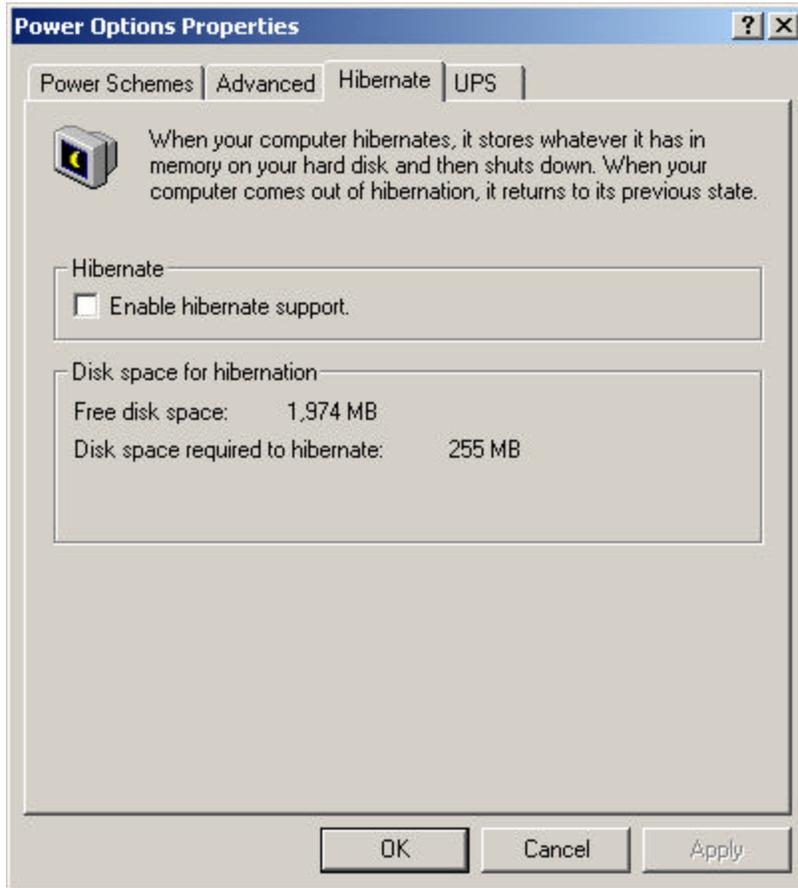
4. Ensure that the check box under Hibernate is blank as shown in the screen capture shown above.

5. Click **OK** and close the Control Panel window.

K. Microsoft Windows 2000 RMC Driver Installation

1. Go to **Start** | **Setting** | **Control Panel**
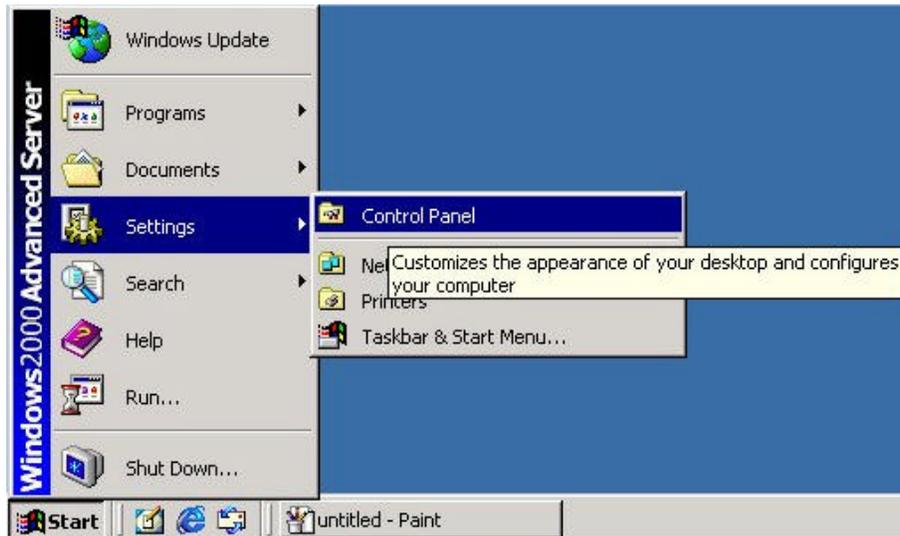
2. Double click on **System**
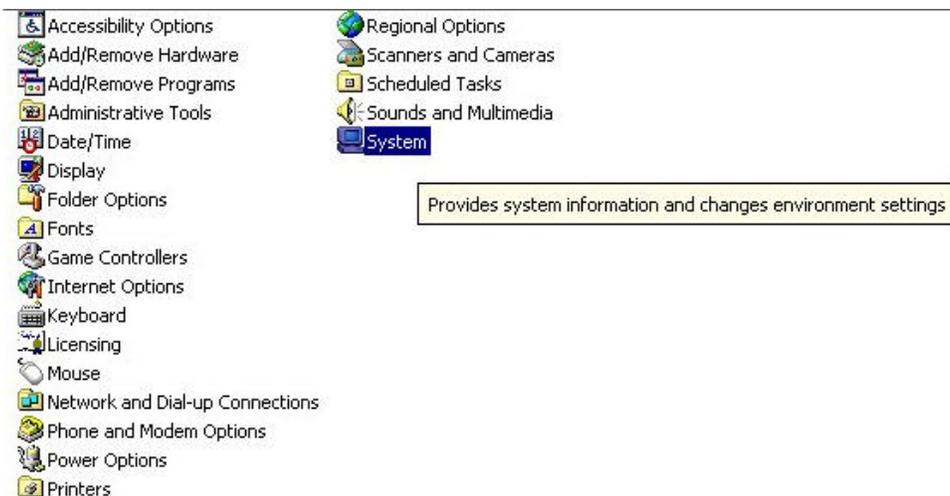
3. Select **Hardware** tab
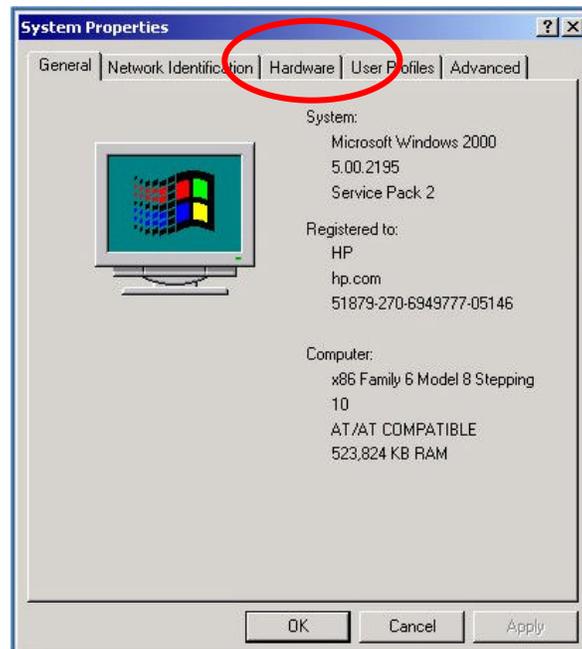
4. Click on **Device Manager**
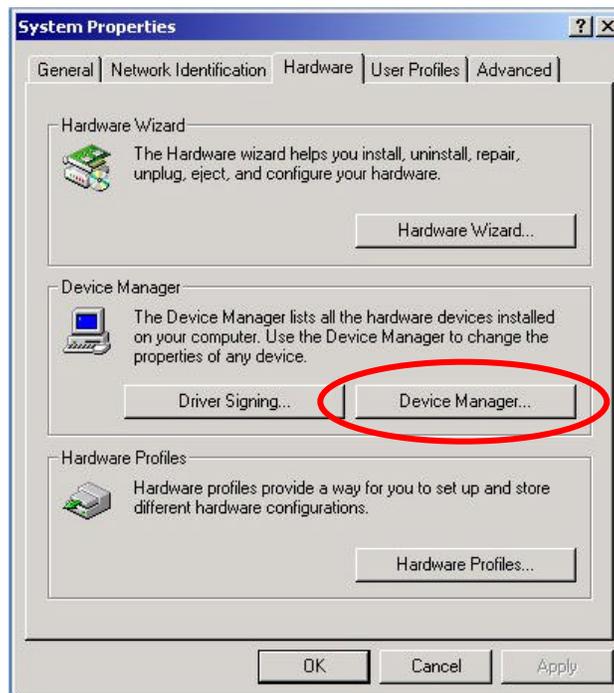
5. Double click on the **Unknown PCI Device**

6. Select **Driver** tab
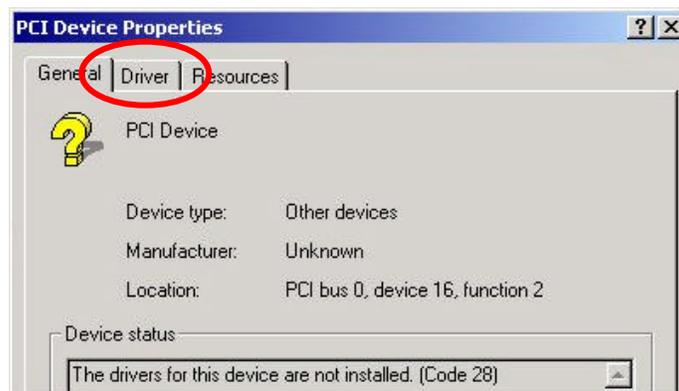
7. Click on **Update Driver**
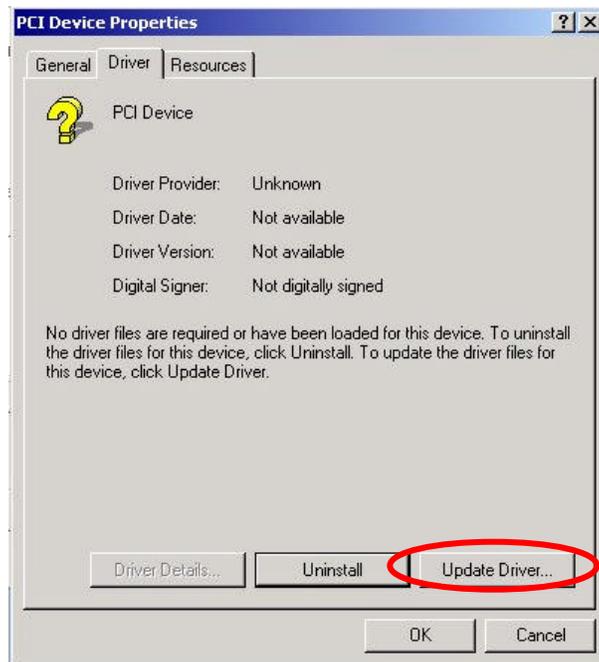
8. An "Upgrade Device Driver Wizard" will open, click **Next**

9. Do not let Microsoft Windows search for the driver. Select "Display a list of known drivers for this device so that I can choose a specific driver", click **Next**
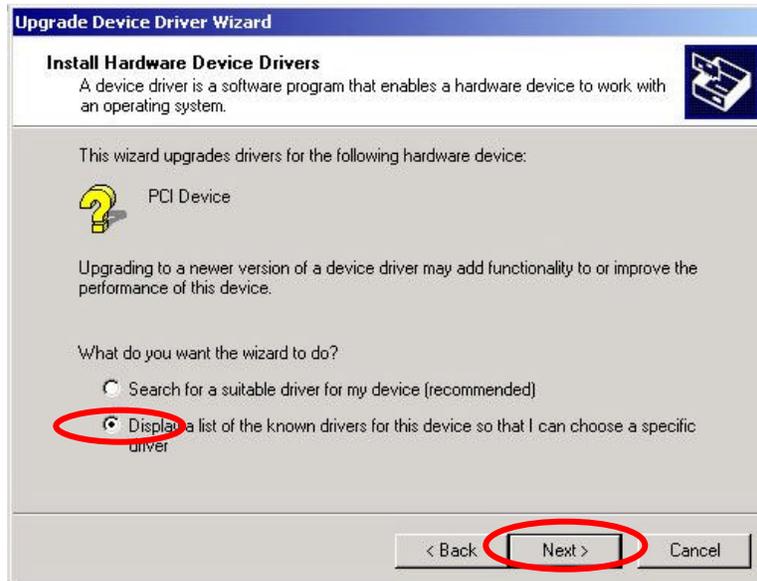
10. In the Hardware Type menu, scroll down to "**Other devices**". Select it and click **Next**
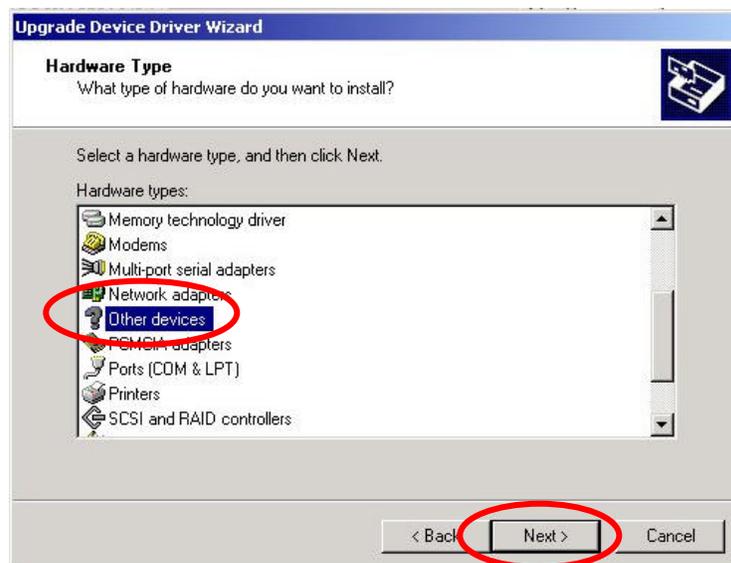
11. In the "Select a Device Driver Wizard", scroll down the Manufacturers list until you find **Hewlett-Packard**. There will be 2 entries for HP, select the <u>**second**</u> one.
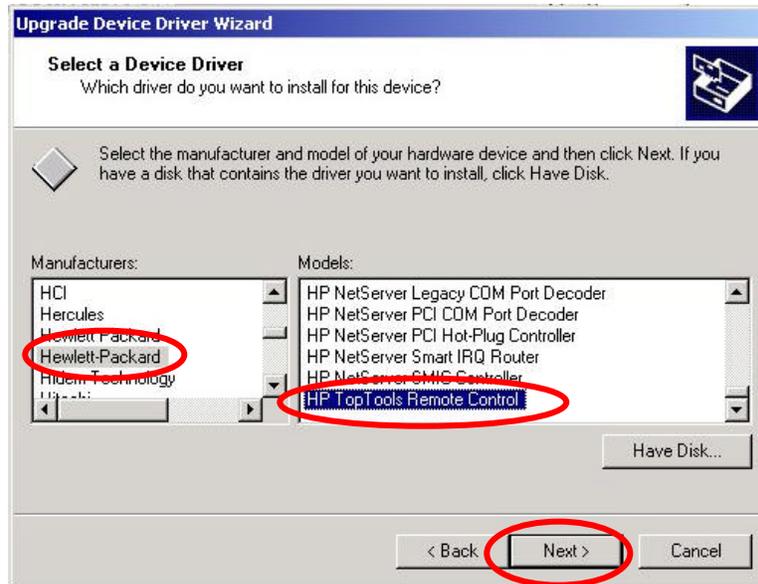
12. In the Models menu, <u>**scroll down to the end of the list**</u>, and find "HP TopTools Remote Control". Select it and click **Next** (see above picture).

13. Microsoft Windows will prompt a warning screen about it does not recommend this driver because it cannot verify the hardware compatibility. Ignore it and click **Yes** to continue.

14. Click **Next** to start the driver installation.

15. Click **Finish.**

16. Click **Close** to close the device property menu.

17. Notice that the unknown PCI Device is now named "HP TopTools Remote Control." **You will have to do the same for all 3 unknown PCI Devices.**
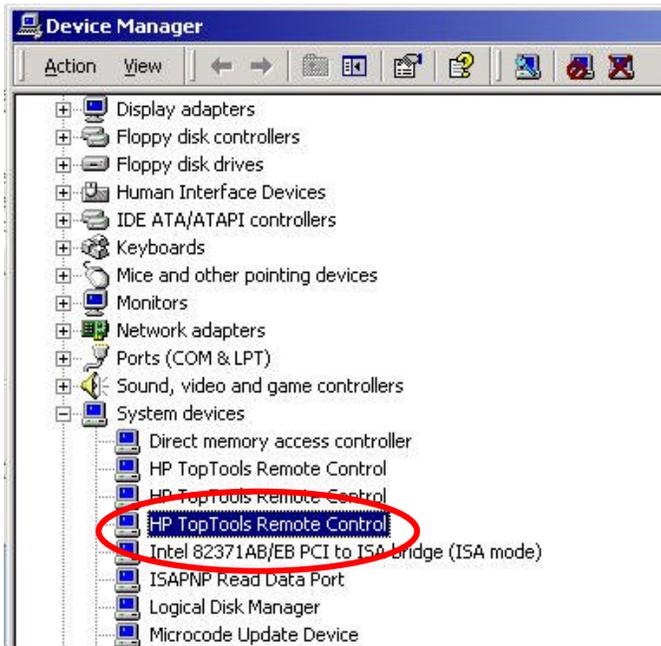
General Notes

Multi Step Process for Individual Server Blade Shutdown

1. Shutdown the Microsoft Windows 2000 operating system. Select **Start** | **Shutdown.**

2. Ensure *Shut down* is selected from the drop down window menu that appears. See below. Click **OK**.

3. Connect to the management blade menu via a Telnet session to the management blade or using a local serial cable connection to the management blade port on the bulkhead of the card.

4. Go to Hardware Install -> select your blade according to the slot number -> Go into More Info. There is a section named Power State, which should say Automatic -> hit **Enter** -> select *Cycle* to power cycle the blade.

Upgrading the BIOS on the bc1100 Server Blade

The bc1100 Server Blade contains BIOS firmware that can be upgraded. For the latest version, go to http://software.hp.com/blade-servers/#firmware and select the **BIOS FW** button found on this Web page to download the most recent version of BIOS firmware. Instructions for the installation procedure are also located on this Web page.

3 <u>Using HP-UX-Based Server Blades</u>

OVERVIEW

HP-UX information for blade servers is contained in documentation released prior to this book. This chapter will primarily consist of pointers to the HP-UX information already written.

NOTE:	At this time, HP-UX 11i is shipping only on the bh37xx series blade servers. Information in this chapter applies exclusively to the bh37xx series blade servers. HP-UX will be introduced on the bh7800 blade server in the future.

Specific HP-UX 11i information is found on the Web at the http://docs.hp.com site.

The bh37xx series documentation is found at http://docs.hp.com/. Once at this Web site, select the "Systems Hardware" link. You will then see a link at the top of the Web page for bh3710. Select the "bh3710" link and you will be taken to the documentation page. Select the "Documentation" link and at this page, you will find these manuals:

- Safety & Regulatory Information

- Site Preparation Guide

- Installation Guide

- Rack Mounting Guide

- Service Guide

You will need an active Internet connection to view these documents:

- HP-UX 11i Operating Environments

- HP-UX 11i Operating Environment LPs

- Networking and I/O Documentation

- Diagnostics